THE MAGAZINE OF

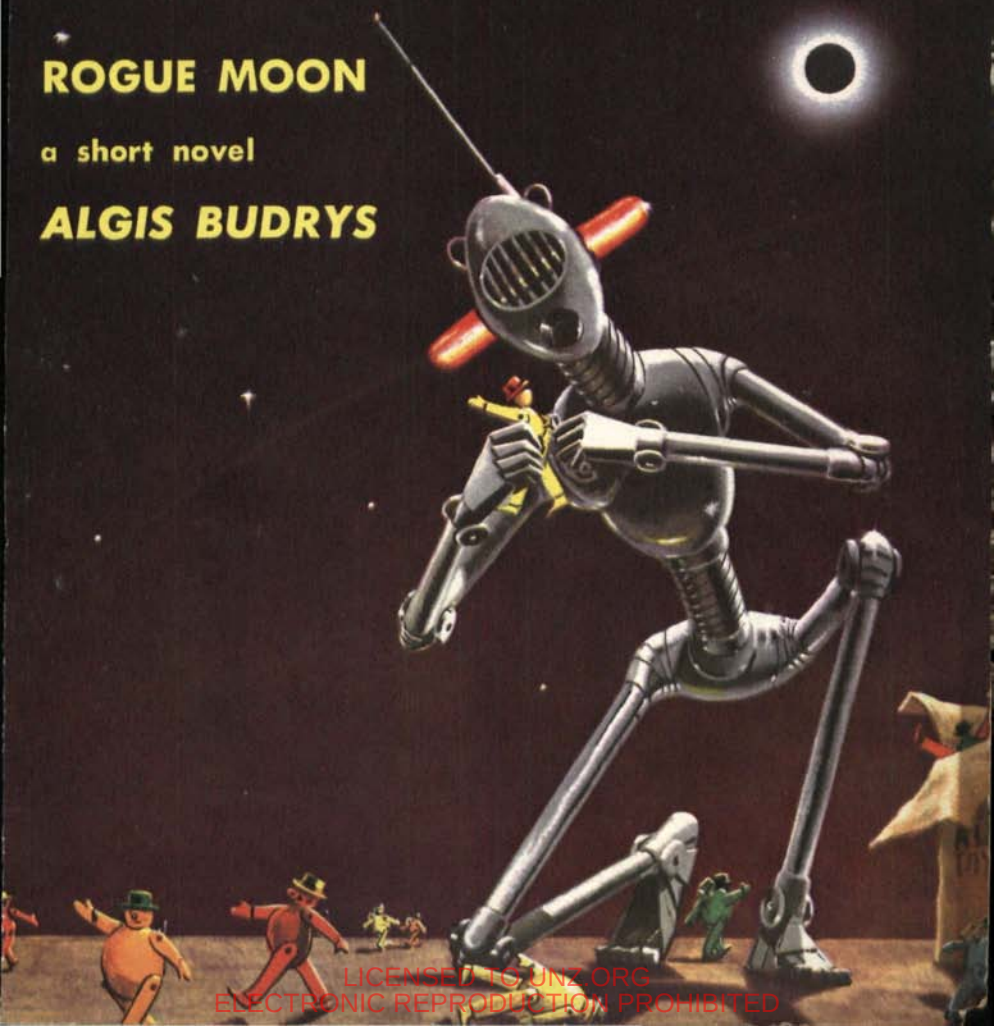
Fantasy AND Science Fiction

DECEMBER 40¢

ROGUE MOON

a short novel

ALGIS BUDRYS



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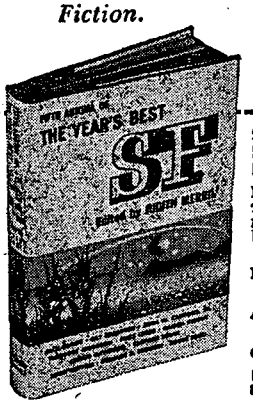

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ROGUE MOON

by Algis Budrys

CHAPTER ONE

LATE ON A DAY IN 1959, EDward Hawks, Doctor of Science, cradled his long jaw in his outsize hands and hunched forward with his sharp elbows on his desk. He was a black-haired, pale-skinned, gangling man who rarely got out in the sun. Compared to his staff of tanned young assistants, he always reminded strangers of a scarecrow.

Now he watched a young man sitting in the straight chair facing him.

The young man stared unblinkingly. His trim crewcut was wet with perspiration and plastered to his scalp. His features were clean, clearskinned and healthy, but his chin was wet. "An dark . . ." he said querulously, "an dark an nowhere starlights. . . ."

The third man in the office was Weston, the recently hired psychologist, who was sitting in an armchair he'd had brought down to Hawks' office.

"He's insane," Hawks said to him like a wondering child.

Weston crossed his legs. "I told you that, Dr. Hawks; I told you the moment we pulled him out of that apparatus of yours. What

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had happened to him was too much for him to stand."

"I know you told me," Hawks said mildly. "But I'm responsible for him. I have to make sure." He began to turn back to the young man, then looked again at Weston. "He was young. Healthy. Exceptionally stable and resilient, you told me. He looked it." Hawks added slowly: "He was brilliant."

"I said he was stable," Weston explained earnestly. "I didn't say he was inhumanly stable. I told you he was an exceptional specimen of a human being. You're the one who sent him to a place no human being should go."

Hawks nodded. "You're right, of course. It's my fault."

"Well, now," Weston said quickly, "he was a volunteer. He knew it was dangerous. He knew he could expect to die."

But Hawks was ignoring Weston. He was looking straight out over his desk again. "Rogan?" he said softly. "Rogan?" He sighed at last and asked Weston: "Can you do anything for him?"

"Cure him," Weston said confidently. "Electroshock treatments. They'll make him forget what happened to him in that place."

"I didn't know electroshock amnesia was permanent."

Weston blinked at Hawks. "He may need repetitive treatment now and then, of course."

"Rogan," Hawks whispered, "Rogan, I'm sorry."

"An dark . . . an dark. . . . It hurt me and so cold . . . so quiet . . ."

Edward Hawks, D.Sc., walked alone across the main laboratory's concrete floor, his hands at his sides. He chose a path among the generators and consoles without looking up, and came to a halt at the foot of the matter transmitter's receiving stage.

The main laboratory occupied tens of thousands of square feet in the basement of Continental Electronics' Research Division building. A year ago, when Hawks had designed the transmitter, part of the first and second floors above it had been ripped out, and the transmitter now towered up nearly to the ceiling along the far wall. Catwalks interlaced the adjoining airspace, and galleries had been built for access to the instruments lining the walls. Dozens of men on Hawks' staff were still moving about, taking final checks before closing down for the day. Their shadows on the catwalks, now and then occluding some overhead light, mottled the floor in shifting patterns of darkness. Hawks stood looking up at the transmitter, his eyes puzzled. Someone abruptly said: "Ed!" and he turned his head in response.

"Hello, Sam." Sam Latourette, his chief assistant, had walked up quietly. He was a heavy-boned man with loose, papery flesh and

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dark-circled, sunken eyes. Hawks smiled at him wanly. "The transmitter crew just about finished with their post-mortem, are they?"

"You'll find the reports on your desk in the morning. There was nothing wrong with the machinery. Nothing anywhere." Latourrette waited for Hawks to show interest. But Hawks only nodded his head.

"Ed!"

"Yes, Sam?"

"Stop it. You're doing too much to yourself." He again waited for some reaction, but Hawks only smiled into the machine, and Latourette burst out: "Who do you think you're kidding? How long have I been working with you now? Ten years? Who gave me my first job? Who trained me? You can keep up a front with anybody else, but not with *me!*" Latourette clenched his fist and squeezed his fingers together emptily. "I *know* you! But—damn it, Ed, it's not your fault that thing's out there! What do you expect—that you not only won't ever make any mistakes but that nothing'll ever get hurt, either? What do you want—a perfect world?"

Hawks smiled again in the same way. "We tear a gateway where no gate has ever been," he said, nodding at the mechanisms, "in a wall we didn't build. That's called scientific investigation. Then we send men through the gate. That's the human adventure. And something on the other side—something that never troubled Mankind; something that's never done us any harm before or troubled us with the knowledge that it was there—kills them. In terrible ways we can't understand, it kills them. So I keep sending in more men. What's that called, Sam?"

"Ed, we *are* making progress. This new approach is going to be the answer."

Hawks looked curiously at Latourette. Latourette said uncomfortably: "Once we get the bugs out of it. That's all it needs."

Hawks did not change his expression or turn it away. He stood with his fingertips forced against the gray crackle finish. "You mean, we're no longer killing them? We're only driving them insane with it?"

"All we have to do, Ed," Latourette pressed him, "all we have to do is find a better way of cushioning the shock when the man feels himself die. More sedatives. Something like that."

Hawks said: "They still have to go into that place. How they do it makes no difference; it won't tolerate them. It was never made for human beings to have anything to do with. It kills them. And no man can stand to die."

Latourette reached out sharply and touched the sleeve of his smock. "Are you going to shut the program down?"

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Hawks looked at him.

Latourette was clutching his arm. "Cobey. Isn't he ordering you to cancel it?"

"Cobey can only make requests," Hawks said gently. "He can't order me."

"He's company *President,* Ed! He can make your life miserable! He's dying to get Continental Electronics off this hook!"

Hawks took Latourette's hand away from his arm. "The Navy originally financed the transmitter's development only because it was my idea. They wouldn't have vouchered that kind of money for anyone else in the world. Not for a crazy idea like this." He stared into the machine. "Even now, even though that place we found is the way it is, they still won't let Cobey back out on his own initiative. Not as long as they think I can keep going. I don't have to worry about Cobey." He smiled softly and a little incredulously. "Cobey has to worry about me."

"Well, how *about* you? How much longer can you keep this up?"

Hawks stepped back. He looked at Latourette thoughtfully. "Are we worrying about the project, now, or are we worrying about me?"

Latourette sighed. "All right, Ed, I'm sorry," he said. "But what're you going to do?"

Hawks looked up and down at the matter transmitter's towering height. In the laboratory space behind them, the technicians were now shutting off the lights in the various sub-sections of the control array. Darkness fell in horizontal chunks along the galleries of instruments, and in black diagonals like jackstraws being laid upon the catwalks overhead.

"We can't do anything about the nature of the place to which they go," Hawks said. "And we've reached the limit of what we can do to improve the way we send them there. It seems to me there's only one thing left to do. We must find a different kind of man to send. A man who won't go insane when he feels himself die." He looked quizzically into the machine's interior.

"There are all sorts of people in the world," he said. "Perhaps we can find a man who doesn't fear Death, but loves her."

Latourette said bitterly: "Some kind of psycho."

"Maybe that's what he is. But I think we need him, nevertheless." Almost all the laboratory lights were out, now. "What it comes down to is we need a man who's attracted by what drives other men to madness. And the more so, the better. . . . A man who's impassioned by Death." His eyes lost focus, and his gaze extended itself to infinity. "So now we know what I am. I'm a pimp."

Continental Electronics' Direc-

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tor of Personnel was a broad-faced man named Vincent Connington. He came briskly into Hawks' office and pumped his hand enthusiastically. He was wearing a light blue shantung suit and russet cowboy boots, and as he sat down in the visitors' chair, he looked around and remarked: "Got the same office layout myself, upstairs. But it sure looks a lot different with some carpeting on the floor and some good paintin's on the walls." He turned back to Hawks, smiling. "I'm glad to get down here and talk to you, Doctor. I've always had a lot of admiration for you. Here you are, running a department and still getting in there and working right with your crew. All I do all day is sit behind a desk and make sure my clerks handle the routine without foulin' up."

"They seem to do rather well," Hawks said in a neutral voice. He was beginning to draw himself up unconsciously in his chair, and to slip a mask of expressionlessness over his face. His glance touched Connington's boots once, and then stayed away. "At least, your department's been sending me some excellent technicians."

Connington grinned. "Nobody's got any better." He leaned forward. "But that's routine stuff." He took Hawks' interoffice memo out of his breast pocket. "*This*, now— This request, I'm going to fill personally."

Hawks said carefully: "I certainly hope you can. I expect it may take some time to find a man fitting the outlined specifications. I hope you understand that, unfortunately, we don't have much time. I—"

Connington waved a hand. "Oh, I've got him already. Had him in mind for you for a long time."

Hawks' eyebrows rose. "Really?"

Connington grinned shrewdly across the plain steel desk. "Hard to believe?" He lounged back in his chair. "Doctor, suppose somebody came to you and asked you to do a particular job for him—design a circuit to do a particular job. Now, suppose you reached out a piece of paper and said: 'Here it is.' What about that? And then when he was all through shaking his head and saying how it was hard to believe you'd have it right there, you could explain to him about how electronics was what you did *all* the time. About how when you're not thinking about some specific project, you're still thinking about electronics in general. And how, being interested in electronics, you kept up on it, and you knew pretty much where the whole field was going. And how you thought about some of the problems they were likely to run into, and sometimes answers would just come into your head so easily it couldn't even be called work. And how you filed these

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things away until it was time for them to be brought out. See? That way, there's no magic. Just a man with a talent, doing his work."

Connington grinned again. "Now I've got a man who was made to work on this machine project of yours. I know him inside out. And I know a little bit about you. I've got a lot to learn about you, yet, too, but I don't think any of it's goin' to surprise me. And I've got your man. He's healthy, he's available, and I've had security clearances run on him every six months for the last two years. He's all yours, Doctor. No foolin'.

"You see, Doctor—" Connington folded his hands in his lap and bent them backward, cracking his knuckles, "you're not the only mover in the world."

Hawks frowned slightly. "Mover?" Now his face betrayed nothing.

Connington chuckled softly to himself over some private joke that was burgeoning within him. "There're all kinds of people in this world. But they break down into two main groups, one big and one smaller. There's the people who get moved out of the way or into line, and then there's the people who do the moving. It's safer and a lot more comfortable to go where you're pushed. You don't take any of the responsibility, and if you do what you're told, every once in a while you get thrown a fish. Being a mover isn't safe, because you may be heading for a hole, and it isn't comfortable because you do a lot of jostling back and forth, and what's more, it's up to you to find your own fish. But it's a hell of a lot of fun." He looked into Hawks' eyes. "Isn't it?"

Hawks said: "Mr. Connington —" He looked directly back at the man. "I'm not convinced. This individual I requested would have to be a very rare type. Are you sure you can instantly give him to me? Do you mean to say your having him ready, as you say, *isn't* a piece of conspicuous forethought? I think perhaps you may have had some other motive, and that you're seizing on a piece of lucky coincidence."

Connington lolled back, chuckled, and lit a green-leaved cigar from the tooled leather case in his breast pocket. He puffed, and let the smoke drift out between his large, well-spaced teeth.

"Let's keep polite, Doctor Hawks," he said. "Let's look at it in the light of reason. Continental Electronics pays you to head up Research, and you're the best there is." Connington leaned forward just a little, shifted the cigar just a little in his fingers. "Continental Electronics pays me to run Personnel."

Hawks thought for a minute and then said: "Very well. How soon can I see this man?"

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Connington lolled back and took a satisfied puff on the cigar. "Right now. He lives right nearby, on the coast—up on the cliffs, there. If you've got an hour or so, what say we run on down there now?"

"I have nothing else to do if he turns out not to be the right man."

Connington stretched and stood up. His belt slipped below the bulge of his stomach, and he stopped to hitch up his trousers. "Use your phone," he muttered perfunctorily around the cigar, reaching across Hawks' desk. He called an outside number and spoke to someone briefly and, for a moment, sourly, saying they were coming out. Then he called the company garage and ordered his car brought around to the building's main entrance. When he hung up the phone, he was chuckling again. "Well, time we get downstairs, the car'll be there."

Hawks nodded and stood up.

Connington grinned at him. "I like it when somebody gives me enough rope. I like people who stay suspicious when I'm offerin' them what they want." He was still laughing over the secret joke. "The more rope I get, the more operating room it gives me. You don't figure that way. You see someone who may give you trouble, and you close up. You get into a shell, and you stay there, because you're afraid it may be trouble you can't handle. Most people do. That's why, one of these days, I'm goin' to be president of this corporation, and you'll still be head of the Research Division."

Hawks smiled. "How will you like it, then, going to the Board of Directors, telling them my salary has to be higher than yours?"

'Yeah," Connington said reflectively. "Yeah, there'd be that." He cocked an eye at Hawks. "You mean it, too."

He tapped his cigar ash off into the middle of Hawks' desk blotter. "Get hot, sometimes, inside your insulated suit, does it?"

Hawks looked expressionlessly down at the ash and up at Connington's face. "Your car is waiting for us."

They drove along the coastal highway in Connington's new Cadillac, until the highway veered inland away from the cliffs facing into the ocean. Then, at a spot where a small general store with two gasoline pumps stood alone, Connington turned the car into a narrow sand road that ran along between palmetto scrub and pine stands toward the water. From there the car swayed down to a narrow gravel strip of road that ran along the foot of the rock cliffs only a few feet above the high water mark. The car murmured forward with one fender overhanging the water side,

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and the other perhaps a foot from the cliffs. They moved along in this manner for a few minutes, Connington humming to himself in a tenor drone and Hawks sitting erect.

The road changed into an incline blasted out of the cliff face, with the insecure rock overhanging it in most places, and crossed a narrow, weatherworn timber bridge three car-lengths long across the face of a gut wider than most. The wedge-shaped split in the cliff was about a hundred feet deep. The ocean came directly into it, under the bridge, with no intervening beach, and even now at low tide, solid water came pouring into the base of the cleft and broke up into fountaining spray. It wet the car's windshield. The timber bridge angled up from fifty feet above water level, about a third of the way up the face of the cliffs, and its bottom dripped.

The road went on past the bridge, but Connington stopped the car with the wheels turned toward a galvanized iron mailbox set on a post. It stood beside an even narrower driveway that climbed steeply up into the side of the cleft and went out of sight around a sharp break in its wall.

"That's him," Connington grunted, pointing toward the mailbox with his cigar. "Barker. Al Barker." He peered slyly sideward. "Ever hear the name?"

Hawks frowned and then said: "No."

"Don't read the sports pages?" Connington backed the car a few inches until he could aim the wheels up the driveway, put the transmission selector in Lo, and hunched forward over the wheel, cautiously depressing the accelerator. The car began forging slowly up the sharp slope, its inside fender barely clearing the dynamited rock, and its left side flecked with fresh spray from the upsurge in the cleft.

"Barker's quite a fellow," Connington muttered with the soggy butt of his cigar clenched between his teeth. "Parachutist in World War II. Transferred to the O.S.S. in 1944. Specialized in assassination. Now he's a soldier of fortune—the real thing, not the tramp adventurer—and he used to be an Olympic ski-jumper. Bobsled crewman. National Small Arms Champion, 1950. Holds a skin-diving depth record. Used to mountain climb. Cracked an outboard hydroplane into the shore at Lake Meade, couple of years ago. 'S where I met him, time I was out there on vacation. Right now, he's built a car and entered it in Grand Prix competition. Plannin' to do his own driving."

Hawks' eyebrows drew together and then relaxed.

Connington grinned crookedly without taking his eyes completely

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off the road. "Begin to sound like I knew what I was doin'?"

Before Hawks could answer, Connington stopped the car. They were at the break in the cleft wall. A second, shallower notch turned into the cliff here, forming a dogleg that was invisible from the road over the bridge below. The driveway angled around it so acutely that Connington's car could not make the turn. The point of the angle had been blasted out to make the driveway perhaps eighty inches wide at the bend of the dogleg, but there were no guard rails; the road dropped off sheer into the cleft, and either leg was a chute pointing to the water below.

"You're gonna have to help me here," Connington said. "Get out and tell me when my wheels look like they're gonna go over."

Hawks looked at him, pursed his lips, and got out of the car.

"O.K., now," Connington said, "I'm gonna have to saw around this turn. You tell me how much room I've got."

Hawks nodded. Connington swung the car as far around the dogleg as he could, backed, stopped at Hawks' signal and moved forward again. He continued to repeat the maneuver, grinding his front tires from side to side over the road, until the car was pointed up the other leg of the driveway. Then he waited while Hawks got back in.

"We should have parked at the bottom and walked up," Hawks said.

Connington started them up the remaining incline and pointed to his feet. "Not in these boots," he grunted. He paused, then said: "Barker takes that turn at fifty miles an hour." He looked sidelong at Hawks.

"You see, Doc? You've got to learn to trust me, even if you don't like or understand me. I do my job. I've got your man for you. That's what counts." And his eyes sparkled with the hidden joke, the secret knowledge that he still kept to himself.

At the top of the incline, the driveway curved over the face of the cliff and became an asphalt strip running beside a thick, clipped, dark green lawn. Automatic sprinklers kept the grass sparkling with moisture. Cactus and palmetto grew in immaculate beds, shaded by towering cypress. A low, cedar-planked house faced the wide lawn, its glassed nearer wall looking out over the cliff at the long blue ocean. A breeze stirred the cypress.

There was a swimming pool in the middle of the lawn. A thin blonde woman with extremely long legs, who was deeply suntanned and wearing a yellow two-piece suit, was lying face-down on a beach towel, listening to music from a portable radio.

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An empty glass with an ice cube melting in its bottom sat on the grass beside a thermos jug. The woman raised her head, looked at the car, and drooped forward again.

Connington lowered a hand half-raised in greeting. "Claire Pack," he said to Hawks, guiding the car around to the side of the house and stopping on a concrete apron in front of the double doors of a sunken garage.

"She lives here?" Hawks asked.

Connington's face had lost all trace of pleasure. "Yeah. Come on."

They walked up a flight of flagstone steps to the lawn, and across the lawn toward the swimming pool. There was a man swimming under the blue-green water, raising his head to take an occasional quick breath and immediately pushing it under again. Beneath the rippling, sun-dappled surface, he was a vaguely man-shaped, flesh-colored creature thrashing from one end of the pool to the other. An artificial leg, wrapped in transparent plastic sheeting, lay between Claire Pack and the pool, near a chrome-plated ladder going down into the water. The radio played Glenn Miller.

"Claire?" Connington asked tentatively.

She hadn't moved in response to the approaching footsteps. She had been humming softly to the music, and tapping softly on the towel with the red-lacquered tips of two long fingers. She turned over slowly and looked at Connington upside down.

"Oh," she said flatly. Her eyes shifted to Hawks' face. They were clear green, flecked with yellow-brown, and the pupils were contracted in the sunlight.

"This is Doctor Hawks, Claire," Connington told her patiently. "He's vice-president in charge of the Research Division, out at the main plant. I called and told you. What's the good of the act? We'd like to talk to Al."

She waved a hand. "Sit down. He'll be out of the pool in a little while."

Connington lowered himself awkwardly down on the grass. Hawks, after a moment, dropped precisely into a tailor-fashion seat on the edge of the towel. Claire Pack sat up, drew her knees under her chin, and looked at Hawks. "What kind of a job have you got for Al?"

Connington said shortly: "The kind he likes." As Claire smiled, he looked at Hawks and said: "You know, I forget. Every time. I look forward to coming here, and then when I see her I remember how she is."

Claire Pack paid him no attention. She was looking at Hawks, her mouth quirked up in an expression of intrigued curiosity. "The kind of work Al likes? You

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don't look like a man involved with violence, Doctor. What's your first name?" She threw a glance over her shoulder at Connington. "Give me a cigarette."

"Edward," Hawks said softly. He was watching Connington fumble in an inside breast pocket, take out a new package of cigarettes, open it, tap one loose, and extend it to her.

Without looking at Connington, she said softly: "Light it." A dark, arched eyebrow went up at Hawks. Her wide mouth smiled. "I'll call you Ed." Her eyes remained flat calm.

Connington, behind her, wiped his lips with the back of his hand, closed them tightly on the filtered tip, and lit the cigarette with his ruby-studded lighter. The tip of the cigarette was bound in red-glazed paper, to conceal lipstick marks. He puffed on it, put it between her two upraised fingers, and returned the remainder of the pack to his inside breast pocket.

"You may," Hawks said to Claire Pack with a faint upward lift of his lips. "I'll call you Claire."

"She raised one eyebrow again, puffing on the cigarette. "All right."

Connington looked over Claire's shoulder. His eyes were almost tearfully bitter. But there was something else in them as well. There was something almost like amusement in the way he said: "Nothing but movers today, Doctor. And all going in different directions. Fast company. Keep your dukes up."

Hawks said: "I'll do my best."

"I don't think Ed looks like a soft touch, Connie," Claire said.

Hawks said nothing. The man in the pool had stopped and was treading water with his hands. Only his head was above the surface, with short sandy hair streaming down from the top of his small, round skull. His cheekbones were prominent. His nose was thin-bladed, and he had a clipped moustache. His eyes were unreadable at the distance, with the reflected sunlight rippling over his face.

"That's the way his life's arranged," Connington was mumbling to Claire Pack spitefully, not seeing Barker watching them. "Nice and scientific. Everything balances. Nothing gets wasted. Nobody steals a march on Doctor Hawks."

Hawks said: "Mr. Connington met me personally for the first time this morning."

Claire Pack laughed with a bright metallic ripple. "Do people offer you drinks, Ed?"

"I don't think that'll work either, Claire," Connington growled.

"Shut up," she said. "Well, Ed?" She lightly held up the thermos jug, which seemed to be nearly empty. "Scotch and water?"

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"Thank you, yes. Would Mr. Barker feel more comfortable about getting out of the pool, if I were to turn my back while he was fastening his leg?"

Connington said: "She's never this blatant after she's made her first impression. Watch out for her."

She laughed again, throwing her head back. "He'll come out when he's good and ready. He might even like it if I sold tickets to the performance. Don't you worry about Al, Ed." She unscrewed the top of the jug, pulled the cork, and poured a drink into the plastic top. "No spare glasses or ice out here, Ed. It's pretty cold, anyhow. All right?"

"Perfectly, Claire," Hawks said. He took the cup and sipped at it. "Very good." He held the cup in his hands and waited for her to fill her glass.

"How about me?" Connington said. He was watching the hair stir at the nape of Claire Pack's neck, and his eyes were shadowed.

"Go get a glass from the house," she said. Leaning forward, she touched the side of her glass to Hawks' cup. "Here's to a well-balanced life."

Hawks smiled fleetingly and drank. She reached out and put her hand on his ankle. "Do you live near here, Ed?"

Connington said: "She'll chew you up and spit you out, Hawks. Give her half a chance, and she will. She's the biggest bitch on two continents. But you've got to figure Barker would have somebody like her around."

Claire turned her head and shoulders and looked squarely at Connington for the first time. "Are you trying to start something, Connie?" she asked in a mild voice.

Something flickered in Connington's face. But then he said: "Doctor Hawks is here on business, Claire."

Hawks looked up at Connington curiously over the rim of his cup. His black eyes were intent for a moment, then shifted to Claire Pack, brooding.

Claire said to Connington: "Everybody's everywhere on some kind of business. Everybody who's worth a damn. Everybody has something he wants. Something more important than anything else. Isn't that right, Connie? Now, go tend to your business, and I'll manage mine." Her look came back to Hawks, catching him off guard. Her eyes held his momentarily. Then they widened and wavered away before she brought them determinedly back. "I'm sure Ed can take care of his own," she said.

Connington flushed, twisted his mouth to say something, turned sharply, and marched away across the grass. In a flash of

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brief expression, Claire Pack smiled enigmatically to herself.

Hawks sipped his drink. "He's not watching any longer. You can take your hand away from my ankle."

She smiled sleepily. "Connie? I tease him to oblige him. He's forever coming up here, since he met Al and myself. The thing is—he can't come up alone, you understand? Because of the bend in the driveway. He could do it if he gave up driving those big cars, or he could bring a woman along to help him make it. But he never brings a woman, and he won't give up either that car or those boots. He brings a new man almost every time." She smiled. "He asks for it, don't you see? He wants it."

"These men he brings up." Hawks asked. "*Do* you chew them up and spit them out?"

Claire threw her head back and laughed. "There are all kinds of men. The only kind that're worth anyone's time are the ones I can't mangle the first time out."

"But there are other times after the first time? It never stops? I didn't mean Connington was watching us. I meant Barker. He's pulling himself out of the pool. Did you deliberately place his artificial leg so he'd have to strain to reach it? Simply because you knew another new man was coming and would need to be shown how fierce you were?"

For a moment, the skin around her lips seemed crumpled and spongy. Then she said: "Are you curious to find out how much of it is bluff?" She was in complete control of herself again.

Hawks said nothing to this for a moment. "Are you a long-time friend of Mr. Barker's?" he asked at last.

Claire Pack nodded. She smiled challengingly.

Hawks nodded, checking off the point. "Connington was right, I think."

Barker had long arms and a flat, hairy stomach, and was wearing knitted navy blue swimming trunks without an athletic supporter. He was a spare, wiry man with a tight, clipped voice, saying "How d'you do?" as he strode briskly across the grass. He snatched up the thermos and drank from it, throwing his head back and holding the jug upraised. He gasped with great pleasure, thumped the jug down beside Claire Pack, wiped his mouth, and sat down. "Now, then!" he exclaimed, "What's all this?"

"Al, this is Doctor Hawks," Claire said evenly. "Not an M.D. He's from Continental Electronics. He wants to talk to you. Connie brought him."

"Delighted to meet you," Barker said, heartily extending a hand. There were burn scars on the mottled flesh. One side of his face had the subtle evenness of plastic

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surgery. "Can't say I've ever heard of your work, I'm afraid."

Hawks took the hand and shook it. "I've never met an Englishman who'd call himself Al."

Barker laughed in a brittle voice. His face changed subtly. "Matter of fact, I'm nearly as English as Paddy's pig. Amerind's the nationality."

"Al's grandparents were Mimbreno Apaches," Claire said with some sort of special intonation. "His grandfather was the most dangerous man alive on the North American continent. His father found a silver lode that assayed as high as any deposit ever known. Does it still hold that record, darling?" She drawled the question. Without waiting for an answer, she said: "And Al has an Ivy League education."

Barker's face was tightening, the small, prominent cheekbones turning pale. He reached abruptly for the thermos. Claire smiled at Hawks. "Al's fortunate he isn't on the reservation. It's against Federal law to sell an Indian liquor."

Hawks waited for a moment. He watched Barker finish the jug. "I'm curious, Mr. Barker," he said then. "Is that your only reason for exploiting a resemblance to something you're not?"

Barker stopped with the jug half-lowered. "How would *you* like shaving your head to a Lenape scalplock, painting your face and body with aniline dyes, and performing a naked wardance on the main street of a New England college town?"

"I wouldn't join the fraternity."

"That would never occur to Al," Claire said, leaning back on her elbows. "Because, you see, at the end of the initiation he was a full-fledged fraternity brother. At the price of a lifelong remembrance, he gained a certain status during his last three undergraduate years. And a perpetual flood of begging letters from the fund committee." She ran one palm up the glossy side of Barker's jaw and let the fingers trail down his shoulder and arm. "But where is Delta Omicron today? Where are the snows of yesteryear? Where is the Mimbreno boy?" She laughed and lolled back against Barker's good thigh.

Barker looked down at her in twisted amusement. He ran the fingers of one hand into her hair. "You mustn't let Claire put you off, Doctor," he said. "It's only her little way." He seemed unaware that his fingers were clenched around the sun-bleached strands of hair, and that they were twisting slightly and remorselessly. "Claire likes to test people."

"Yes," Hawks said. "But I came here to see you."

Barker seemed not to have heard. He looked at Hawks with a level deadliness. "It's interesting how Claire and I met. Seven years

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ago, I was on a mountain in the Alps. I rounded a sheer face—it had taken a *court d'echelle* from another man's shoulders, and a piton traverse, to negotiate it—and she was there." Now his hand was toying tenderly. "She was sitting with one leg over a spur, staring down into the valley and dreaming to herself. Like that. I had no warning. It was as if she'd been there since the mountain was made."

Claire laughed softly, lying back against Barker and looking up at Hawks. "Actually," she said, "I'd come 'round by an easier route with a couple of French officers. I wanted to go down the way Al had come up, but they'd said it was too dangerous, and refused." She shrugged. "So I went back down the mountain with Al. I'm really not very complicated, Ed."

"Before she went, I had to knock the Frenchmen about a little bit," Barker said, and now his meaning was clear. "I believe one of them had to be taken off by helicopter. And I've never forgotten how one goes about keeping one's hold on her."

Claire smiled. "I'm a warrior's woman, Ed." Suddenly she moved her body, and Barker let his hand fall. "Or at least we like to think so." Her nails ran down Barker's torso. "It's been seven years, and nobody's taken me away yet." She smiled fondly up at Barker for an instant, and then her expression became challenging again. "Why don't you tell Al about this new job, Ed?"

"New job?" Barker smiled in a practiced way. "You mean Connie actually came up here on business?"

Hawks studied Claire and Barker for a moment. Then he made up his mind. "All right. I understand you have clearance, Mr. Barker?"

Barker nodded. "I do." He smiled reminiscently. "I've worked for the Government off and on before this."

"I'd like to speak to you privately, in that case."

Claire stood up lazily, smoothing her sunsuit over her hips. "I'll go stretch out on the diving board for a while. Of course, if I were an efficient Soviet spy, I'd have microphones buried all over the lawn."

Hawks shook his head. "No. If you were a really efficient spy, you'd have a directional microphone on the diving board. You wouldn't need anything better. I'd be glad to show you how to set one up, sometime, if you're interested."

Claire laughed. "Nobody ever steals a march on Doctor Hawks. I'll remember that next time." She walked slowly away, her hips swaying.

Barker turned to follow her with his eyes until she had

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reached the far end of the pool and arranged herself on the board. Then he turned back to Hawks. "She walks in beauty, like the night—even in the blaze of day, Doctor."

"I assume that's to your taste," Hawks said.

Barker nodded. "Oh, yes, Doctor—I meant what I said earlier. Don't let anything she does or says let you forget she's mine not because I have money, or good manners, or charm. I do have money, but she's mine by right of conquest."

Hawks sighed. "Mr. Barker, I need you to do something very few men in the world seem to be qualified to do. That is, if there are any at all besides yourself. I have very little time in which to look for others. So would you mind just looking at these photographs?"

Hawks reached into his inside breast pocket and brought out a small manila envelope. He undid the clasp, turned back the flap, and pulled out a thin sheaf of photographs. He looked at them carefully, on edge so that only he could see what they showed, selected one, and passed it to Barker.

Barker looked at it curiously, frowned, and, after a moment, handed it back to Hawks. Hawks put it behind the other pictures. It showed a landscape that at first seemed to be heaped up of black obsidian blocks and clouds of silver. In the background there were other clouds of dust, and looming asymmetric shadows. New complexities continued to catch the eye until the eye could not follow them all, and had to begin again.

"What is it?" Barker asked. "It's beautiful."

"It's a place," Hawks answered. "Or perhaps not. Perhaps it's an artifact—or else a living thing. But it's in a definite location, readily accessible. As for beauty, please bear in mind that this is a still photograph, taken at one five-hundreth of a second, and, furthermore, eight days ago." He began handing more photographs to Barker. "I'd like you to look at these others. These are men who have been there."

Barker was looking oddly at his face. Hawks went on. "That first one is the first man who went in. At the time, we were taking no more precautions than any hazardous expedition would require. That is, he had the best special equipment we could provide."

Barker looked in fascination at the photograph, now. His fingers jerked, and he almost dropped it. He tightened his grip until the edge of the paper was bent, and when he handed it back the damp imprint of his fingers was on it.

Hawks handed Barker the next. "Those are two men," he said remorselessly. "We thought that

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perhaps a team might survive." He took the picture back and handed over another. "Those are four." He took it back and paused. "We changed our methods thereafter. We devised a piece of special equipment, and after that we didn't lose a man. Here's the most recent one." He passed Barker the remaining photograph. "That's a man named Rogan." He waited.

Barker looked up from the photograph. "Have you a suicide guard over this man?"

Hawks shook his head. He watched Barker. "He'd rather do anything than die again." He gathered up the photographs and put them back into his pocket. "I'm here to offer you his job."

Barker nodded. "Of course." He frowned. "I don't know. Or, rather, I don't know enough. *Where* is this place?"

Hawks said nothing, and after a moment Barker shrugged and said: "How long do I have to reach a decision?"

"As long as you like. But I'll be asking Connington to put me in touch with any other prospects tomorrow."

"So I have until tomorrow."

Hawks shook his head. "I don't think he'll be able to deliver. He wants it to be you. I don't know why."

Barker smiled. "Connie's always making plans for people."

"You don't take him very seriously."

"Do you? There are the people in this world who act, and the people who scheme. The ones who act get things done, and the ones who scheme try to take credit for it. You must know that as well as I do. A man doesn't arrive at your position without delivering results." He looked knowingly and, for a moment, warmly, at Hawks. "Does he?"

"Connington is also a vice-president of Continental Electronics."

Barker spat on the grass. "Personnel recruiting. An expert at bribing engineers away from your competitors. Something any other skulker could do."

Hawks shrugged.

"What is he?" Barker demanded. "A sort of legitimate confidence man? A mumbo-jumbo spouter with a wad of psychological tests in his back pocket? I've been mumbled at by experts, Doctor, and they're all the same. What they can't do themselves, they label abnormal. What they're ashamed of wanting to do, they condemn others for. They cover themselves with one of those fancy social science diplomas, and talk in educated phrases, and pretend they're actually doing something of value. Well, I've got an education too, and I know what the world is like, and I can give Connington cards and spades, Doctor —cards and spades—and still beat him out. Where has he been?

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What has he seen? What has he done? He's nothing, Hawks—nothing compared to a real man."

Barker's lips were pulled back from his glistening teeth. The skin of his face was stretched by the taut muscles at the hinges of his jaws. "He thinks he's entitled to make plans for me. He thinks to himself: 'There's another clod I can use wherever I need him, and get rid of when I'm done with him.' But that's not the way it is. Would you care to discuss art with me, Doctor? Or music? How about literature? Pick your period. I know 'em all. I'm a whole man, Hawks—" Barker got clumsily to his feet. "A better man than anybody else I know. Now let's go join the lady." He began walking away across the lawn, and Hawks slowly got to his feet and followed him.

Claire looked up from where she lay flat on the diving board, and leisurely turned her body until she was sitting upright, her legs extended. "How did it work out?"

"Oh, don't worry," Barker answered her. "You'll be the first to know."

Claire smiled. "Then you haven't made up your mind yet? Isn't the job attractive enough?"

Hawks watched Barker frown in annoyance.

The kitchen door of the house sighed shut on its air spring, and Connington broke into a chuckle behind them. None of them had heard him come across the strip of grass between the house and this end of the pool.

He dangled a used glass from one hand, and held a partially emptied bottle in the other. His face was flushed, and his eyes were wide with the impact of a great deal of liquor over a short period of time. "Gonna do it, Al?"

Instantly, Barker's mouth flashed into a bare-toothed, fighting grimace. "Of course!" he exclaimed in a startlingly desperate voice. "I couldn't let it pass—not for the world!"

Claire smiled faintly to herself.

Hawks watched all three of them.

Connington chuckled again. "What else could you've said?" he laughed at Barker. His arm swept out in irony. "Here's a man famous for split-second decisions. Always the same ones." The secret was out. The joke was being delivered. "You don't understand, do you?" he said to the three at the edge of the pool. "Don't see things the way I do. Let me x'plain.

"A technician—like you, Hawks—sees the whole world as cause an' effect. And the world's consistent, explained that way, so why look for any further explanation?

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"Man like you, Barker, sees the world moved by deeds of strong men. And *your* way of lookin' at it works out, too.

"But the world's big. Complicated. Got more answers in it than it needs. Part-answers can look like the whole answer and act like it for a long time.

"For instance, Hawks can think of himself as manipulating causes 'n producing effects he wants. 'N you, Barker, you can think of yourself as s'perior, Overman type. Hawks can think of you as specified factor t' be inserted in new environment, so Hawks can solve new 'vironment. You can think of yourself as indomitable figure slugging it out with th' unknown. And so it goes, roun' and roun', 'n who's right? Both of you? Maybe. Maybe. But can you stan' to be on the same job together?"

Connington laughed again, his high heels planted in the lawn. "Me, I'm personnel man. I don't look cause and effect. I don't look heroes. Explain the worl' in a different way. *People*—that's all I know. 'S enough. I feel 'em. I know 'em. Like a chemist knows valences. Like a physicist knows particle charges. Positive, negative. Atomic weight, 'tomic number. Attract, repel. I mix 'em. I compound 'em. I take people, 'n I find a job for them, the co-workers for 'em. I take a raw handful of people, and I mutate it, and make isotopes out of it—I make solvents, reagents—'n I can make 'splosives, too, when I want. That's *my* world!

"Sometimes I save people up—save 'em for the right job to make 'em react the right way. Save 'em up for the right people.

"Barker, Hawks—you're gonna be my masterpiece. 'Cause sure as God made little green apples, he made you two to meet . . . 'n me, *me,* I found you, 'n I've done it! I've *rammed* you two together . . . 'n now it's done an' nothing'll ever take the critical mass apart, and sooner, later, it's got to 'splode, and who're you gonna have left then, Claire?"

Hawks broke the silence. He reached out, pulled the bottle out of Connington's hand, and swung toward the cliff. The bottle flailed away and disappeared over the edge. Then Hawks turned to Barker and said quietly: "There are a few more things I ought to tell you before you definitely accept the job."

Barker's face was strained. He was looking at Connington. His head snapped around in Hawks' direction and he growled: "I said I'd do the damned job!"

Claire reached out and took hold of his hand, pulling him down beside her. She thrust herself forward to kiss the underside of Barker's jaw. "That's the ol' fight, Hardrock." She began nib-

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bling the skin, with its faint stubble of beard, gradually inching her mouth down his throat, leaving a row of regularly-spaced marks; wet, round, red parentheses of her lipstick, enclosing the sharper, pinker blotches where her incisors had worried his flesh.

"Don't the three of you *care?*" Connington blurted, his head jerking back and forth. "Didn't you *hear?*"

"Tell me something, Connington," Hawks said. "Did you make your little speech so we'd stop now? Or could anything make us stop, now things are in motion the way you hoped?"

"*Not* hoped," Connington said. "Planned. Knew I'd find a man like you and a spot for Al someday. Today's the day. You think I'd do it, I wasn't sure?"

Hawks nodded. "All right, then," he said in a tired voice. "I thought so. All you wanted to do was make a speech. I wish you'd chosen another time. Are you on your way back to the plant now?"

Barker said to Connington: "I've had better men than you threaten me. I'm here. They're not."

Claire chuckled in a silvery ladder of sound. "Isn't it too bad, Connie? You were so sure we'd all fall down. But it's just like it always was. You still don't know where to push."

Connington backed away incredulously, his arms spread as if to knock their heads together. "Are you three *crazy?* Do you think I made this stuff up out of my *head? Listen* to yourselves—even when you tell me it's all malarkey, you have to say it each a certain way. You can't shake loose from yourselves even for a second; you'll go where your feet take you, no matter what—and you're *laughing* at me? You're laughin' at *me?*"

He lurched around suddenly. "Go to hell, all of you!" he cried. "G'wan!" He began to run clumsily across the grass to his car.

Hawks looked after him. "He's not fit to drive back."

Barker grimaced. "He won't. He'll cry himself to sleep in the car. Then in a few hours he'll come in the house, looking for Claire's comfort." He looked down at Claire with a jerk of his head that broke the chain of nibbles. "Isn't that right? Doesn't he always do that?"

Claire's lips pinched together. "I can't help what he does."

"Barker," Hawks said, "I want to tell you what you're going to have to face."

"Tell me when I get there!" Barker snapped. "I'm not going to back out now."

Claire said: "Maybe that's what he wants you to say, Al? Putting it that way?" She smiled up toward Hawks. "Who says Connington's the only schemer?"

"What's the simplest way for

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me to get back to town?" Hawks said.

"I'll drive you," Barker said coldly. His eyes locked on Hawks. "If you want to try it."

Claire murmured a chuckle and suddenly rubbed her cheek down the length of Barker's thigh. She stared up at Hawks through wide, pleasurably moist eyes, her upstretched arms curled around Barker's waist. "Isn't he grand?" she said huskily to Hawks. "Isn't he a man?"

Hawks waited at the head of the flagstone steps as Barker trotted stiffly down to the garage apron and flung up the overhead doors with a crash. Claire said murmurously behind him: "Look at him move—look at him do things—he's like a wonderful machine out of gut and hickory wood! There aren't any other men like him, Ed—nobody's as much of a man as he is!" Hawks' nostrils widened.

An engine came to waspish life in the garage, and then a short, broad, almost square-framed sports car came out in a glower of sound. Hawks walked around, stepped over the doorless flank of the car and cramped himself into the passenger side. He settled his lower back into the unpadded metal seat, which was slewed around to leave more room for the driver.

Claire stood watching, her eyes ashine. Connington, slumped over the wheel of his Cadillac, facing them at an angle, lifted his swolled face and contorted his lips in a sad reflex.

"Ready?" Barker shouted, running up the engine and edging his right foot away from the center of the brake pedal until only the bead of his cheap shower slipper's cardboard sole was holding it down. "Not frightened, are you?" He stared piercingly into Hawks' face.

Hawks reached over and pulled out the ignition key. "I see," he said quietly.

Barker's hand flashed out and crushed his wrist. "I'm not Connington and that's no bottle—hand over those keys." He was shaking violently.

Hawks relaxed his fingers until the keys barely kept from falling. He put out his other arm and blocked Barker's awkward, left-handed reach for them. "Use the hand that's holding my wrist," he said.

Barker slowly took the keys. Hawks climbed out of the car.

"How are you going to get back to the city?" Claire asked as he walked past the steps.

Hawks said: "I walked long distances when I was a boy. But not to prove my physical endurance."

Claire licked her lips. "No one manages you worth a damn, do they?" she said.

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Hawks paced steadily toward the sloped driveway.

He had barely set foot on the downslope when Barker shouted something strained and unintelligible behind him, and the car sprang into life again and hurtled by him. Barker stared intently out over the short hood, and threw the car into a broadslide. Spuming up dust and gravel, engine roaring, clutch in, rear wheels slack, it skidded down sidewards, its nose toward the cliff wall. The instant its left front fender had cleared the angle of the cliff, Barker banged the clutch up. The right side hovered over the edge of the cut for an instant. Then the rear wheels bit and the car shot down the first angle of the drive, out of sight. There was an instant scream of brakes and a great, coughing scuff of tires.

Hawks came around the angle of the drive, walking steadily through the turbulent, knee-high swale of opaque dust that gradually settled into two smoking furrows leading down from the two broad swatches that scarred the bend of the dogleg. Barker was staring out to sea, sitting with his hands clenched over the top of the steering wheel. As Hawks came up parallel to him, Barker said: "That's the fastest I've ever done it."

Hawks turned into the access road and began walking down over the wooden bridge.

"Are you going to walk all the way back into town?" Barker bawled out hoarsely.

Hawks turned around. He came back. He stood with his hands on the edge of the passenger's side and looked down at Barker. "I'll expect you at the main gate tomorrow at nine in the morning, sharp."

"What makes you think I'll be there? What makes you think I'll take orders from a man who won't do what I would?" Barker's eyes were sparkling with frustration. "What's the matter with you?"

"I'm one kind of man. You're another."

"What's that supposed to mean?" Barker began beating one palm against the steering wheel. What began as a gentle insistent nudge became a mechanical hammering. "I can't *understand* you!"

"You're a suicide," Hawks said. "I'm a murderer." Hawks turned to go. "I'm going to have to kill you over and over again, in various unbelievable ways. I can only hope that you will, indeed, bring as much love to it as you think. Nine sharp in the morning, Barker. Give my name at the gate. I'll have your pass and clearance slip."

He walked away.

Barker muttered: "Yeah." He rose up in his seat and shouted down the road: "He was right, you know it? He was right! We're a *great* pair!"

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CHAPTER TWO

Hawks, came, eventually, to the general store which marked the join of the sand road and the highway. He was carrying his suit coat over his arm, and his shirt, which he had opened at the throat, was wet and sticking to his gaunt body.

He looked past the peeling gasoline pumps, up and down the highway, which burned off into the distance, losing each slight dip in its surface under the shimmering pools of mirages. Only private cars were on it, soughing back and forth past him. The mirages clipped off their wheels as they hissed away through them, and melted the skirts of their fenders.

Hawks turned, pulled open the limply screened door with its grimy bread advertisement pressed through the weave, and stepped inside.

The store was crowded with shelves and cabinets filling almost every square foot of floor space, leaving only narrow aisles. He looked around, blinking sharply once or twice as he did so. There was no one in the store. A narrow, blank door opened into a back room, from which no sound came. Hawks refastened his collar and straightened his necktie.

He had laid his coat on the lid of a Coca-Cola cooler beside him. He picked it up now and swung back the cooler's lid, looking down at the bottles inside. They were all some local brand, bright orange and glassy red, up to their crowns in dirty water. He closed the lid and took a deep breath.

There was a soft crunch of gravel outside as a car rolled up to the gasoline pumps, and a bell rang as its wheels passed over the warning air hoses. Hawks looked out through the screen door. A girl driving an old business coupe looked back at him through her rolled-down window.

Hawks turned toward the rear room. There was no sound. He took a step toward it, awkwardly, opened his mouth and closed it again.

The car door opened and clicked shut as the girl stepped out. She came up to the screen door and peered in. She was a short, dark-haired girl with pale features and wide lips now a little pinched by indecision as she shaded her eyes with her hand. She looked directly at Hawks, and he half shrugged.

She stepped in, and said to Hawks: "I'd like to buy some gasoline."

There was a sound of sudden movement in the back room—a heavy creak of bedsprings and an approaching shuffle of feet. Hawks gestured vaguely in that direction.

"Oh," the girl said. She looked at Hawks' clothes and smiled

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apologetically. "Excuse me. I thought you worked here."

Hawks shook his head.

A fat, balding man in an undershirt and khaki pants, came out of the back room. He rubbed the pillow-creases on his face and said hoarsely, "Just catchin' forty winks." He cleared his throat and rubbed his neck. "What'll it be?" he said to both of them.

"Well, this gentleman was here first," the girl said.

The man looked at Hawks. "You been waitin'? I didn't hear nobody call."

"I only want to know if a city bus goes by here."

"Suppose a bus had gone by while you was in here? Would a felt pretty foolish, wouldn't you?"

Hawks sighed. "*Does* a bus pass by here?"

"Lots a busses, friend. But don't none of them stop to pick up local passengers. Let you off anywhere, if you're comin' from the city, but won't pick you up 'less it's a official bus stop. Rules. Ain't you got no car?"

"No, I don't. How far is it to the nearest bus stop?"

" 'Bout a mile and a half down the road, that way." He waved. "Gas station. Henry's Friendly Service."

Hawks wiped his face again.

The man glanced aside toward the girl. "You want some gas, Miss?" He grinned. "Fix you up in a jiffy." He shouldered past Hawks to the doorway, and awkwardly held the screen door open for her with his soft, extended white arm. He said to Hawks from the doorframe: "You better figure out what you're gonna do, friend—walk, hitch-hike, buy somethin'—I ain't got all day." He grinned again toward the girl. "Got to take care of the young lady, here."

The girl smiled uneasily at Hawks and said "Excuse me," softly, as she moved past him. As she stepped through the doorway, she brushed her left hip and shoulder against the frame to clear the owner's bulk on her other side.

The man pursed his lips with a spitting motion behind her back, ran measuring, deprived eyes over her skirt and blouse, and followed her.

Hawks watched through the window as she got back into the car and asked for ten gallons of regular. The man banged the hose nozzle loose from its bracket, and cranked the dial reset lever with an abrupt jerk of his arm. He stood glowering toward the front of the car, his hands in his pockets, while the automatic nozzle pumped gasoline into the tank. As the automatic surge valve tripped shut, while the pump's counter was passing nine and a half, the man immediately yanked the dribbling nozzle out and slammed it back on its bracket. He crumpled the five-dollar bill

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the girl held out through her window. "C'mon back in the store for your change," he growled, and strode away.

Hawks waited until the man was bent over the counter, fumbling in a cash drawer under its top. Then he siad: "I'll take the lady's change back to her."

The man turned and stared at him in fury, money clutched in his fist. Hawks looked toward the girl, who had the screen door half-open, her face pale and strained. "That'll be all right, won't it?" he said to her. She nodded.

"Yes," she said nervously.

The man slapped the change into Hawks' palm. Hawks looked down at it.

"Ain't that right for ten gallons, Mister?" the man said belligerently. "You want to look and see what it says on that God-damned pump?"

"It's not right for four-tenths less than ten gallons. I did look." Hawks continued to face the man, who turned suddenly and scrabbled in the cash drawer again. He gave Hawks the rest of the change.

Hawks stepped out and gave it to the girl.

The girl said with some effort: "Do—do you need a ride into the city?"

"To the bus stop, yes, thank you." He smiled gently as she looked up. "I forgot I wasn't a boy anymore. I set out on a longer walk than I thought."

"You don't have to explain yourself to me," the girl said. She frowned and shifted her feet. "I have to go all the way into the city," she said. "There's no point just dropping you at the bus stop."

Hawks plucked uneasily at the coat over his arm. Then he put it on and buttoned it. "All right. Thank you."

"Let's go, then," the girl said. They got into the car and pulled out into the traffic stream on the highway.

They sat stiffly in the car as it rolled down the road, its tires thumping regularly over the oozing expansion joints in the concrete.

"I don't look like a pick-up," the girl said.

Hawks, still frowning faintly, looked at her. "You're very attractive."

"But I'm not easy! I'm only offering you a ride. Because you need it, I suppose." Her short hands clicked their scarlet nails against the steering wheel's worn, pitted plastic.

"I know that," he said quietly. "And I don't think you're doing it out of gratitude. That fellow wasn't anybody you couldn't have handled by yourself. I only spared you some effort. I'm not your gallant rescuer, and I haven't won your hand in mortal combat."

"Well, then," she said.

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"We're trapping ourselves again," he said. "Neither of us knows quite what to do. We're talking in circles. If that fellow hadn't come out, we'd still be in that store, dancing a ritual dance around each other."

She nodded vehemently. "'Oh, I'm sorry—I thought you worked here!'," she mimicked herself.

"No, uh, I don't," he supplied.

"Well—uh—is anybody here?"

"I don't know. Do you suppose we should call out, or something. . . ?" He trailed away in a tense imitation of an embarrassed mumble.

The girl thumped her left foot impatiently against the floorboards. "Yes, that's *exactly* how it would have been! And now we're doing it here, instead of there! Can't *you* do something about it?"

Hawks took a deep breath. "My name is Edward Hawks. I'm forty-two years old, unmarried, and I'm a college graduate. I work for Continental Electronics."

The girl said: "I'm Elizabeth Cummings. I'm just getting started as a fashion designer. Single. I'm twenty-five." She glanced aside at him. "Why were you walking?"

"I often walked when I was a boy," he said. "I had many things to think about. I couldn't understand the world, and I kept trying to discover the secret of living successfully in it. If I sat in a chair at home and thought, it worried my parents. So I walked to be alone with myself. I walked miles. And I couldn't discover the secret of the world, or what was wrong with me. But I felt I was coming closer and closer. Then, when enough time had passed, I gradually learned how I could behave properly in the world as I saw it. He smiled. "That's why I was walking this afternoon."

"And where are you going now?"

"Back to work. I have to do some preliminary setting-up on a project we're starting tomorrow." He looked briefly out through the window, and then brought his glance back to Elizabeth. "Where are you going?"

"I have a studio downtown. I have to work late tonight, too."

"Will you give me your address and 'phone number, so I can call you tomorrow?"

"Yes," she said. "Tomorrow night?"

"If I may,"

She said: "Don't ask me questions if you know the answers." She looked at him. "Don't tell me unimportant things just to pass the time."

"Then I'll have many more things to tell you."

She stopped the car in front of Continental Electronics' main gate, to let him out. She touched

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his sleeve as he opened the car door. "That's too hot to wear on a day like this."

He stopped beside the car, opened the jacket, took it off and folded it over his arm. Then he smiled, raised his hand in a tentative gesture, turned, and walked through the gate a guard was holding open for him.

CHAPTER THREE

The suit lay open on its long adjustable table like a sectioned lobster, trailing disconnected air hoses from its sides, its crenelated joints bulging arthritically because of the embedded electric motors and hydraulic pistons that would move them. Hawks had run leads from a test power supply into the joints; the suit flexed and twitched, scraping its legs ponderously on the table's plastic facing, writhing the tool and pincer clusters at the ends of its arms. One of the Navy men wheeled up a compressed air cylinder and snapped the air hoses to it. At Hawks' nod, the helmet, crested with reinforcing ridges, its faceplate barred by a cross-hatch of steel rods, hissed shrilly through its intakes while the table surface groaned.

"Leave it, Ed," Sam Latourette said. "These men can handle that."

Hawks looked apologetically at the Navy team of dressers, who had all turned their eyes on Latourette. "I know that, Sam."

"Are *you* going to wear it? Leave it alone!" Latourette burst out. "Nothing ever goes wrong with any of the equipment!"

Hawks said patiently: "I want to do it. The boys, here—" He gestured toward the dressers. "The boys don't mind my playing with their erector set."

"Well, this fellow Barker's down at the gate. I just got a call. Give me his pass and stuff, and I'll go down and get him."

"No, I'll do that, Sam." He stepped back from the table, and nodded toward the dressers. "It's in fine shape. Thank you." He left the laboratory and went up the stairs to the ground floor.

Outside, he walked out along the fog-wet black asphalt driveway toward the gate, which was at first barely visible through the acrid mist. He looked at his wristwatch, and smiled faintly.

"Well, *morituri te salutamus*, Doctor," Barker said as he stepped through. "We signify your status at the point of our death."

Hawks' face twitched. "I've also read a book," he said softly, and turned away. "Put your badge on and come with me."

Barker took it from the gate guard, who had logged its number, and clipped it to his Basque shirt pocket, falling into step with Hawks.

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"Claire didn't want me to come," he said, cocking his head up sideward to glance significantly at Hawks. "She's afraid."

"Of what I might do to you, or of what might happen to her because of it?" Hawks answered, keeping his eyes on the buildings.

"I don't know, Doctor." There was wariness in Barker's tension. "But," he said slowly, his voice hard and sharp, "I'm the only other man that's ever frightened her."

Hawks said nothing. He continued to walk back toward the building, and after a while Barker smiled once again, thinly and crookedly, and also walked with his eyes only on where his feet were taking him. . . .

Hawks unlocked the door of his office and let Barker in ahead of him. He turned on the lights and motioned toward the visitors' chair.

"Please sit down. I have to tell you, now, what this is about,—and where you're going."

Barker sat down carelessly. "I'd be grateful, Doctor."

Hawks arched an eyebrow. "Would you?" He sat down and faced Barker across the desk, much as he had faced Rogan. "Now, this is going to be a long story.

"It begins with the fact that we have a matter transmitter—that is, a piece of electronic equipment which produces the effect of moving an object from one location to another at the speed of light." Hawks looked across the desk at Barker.

"And you want to test it on me," Barker said.

"It's been tested hundreds of times. Dozens of men have gone through it with no visible difficulty. It's been in operation for a year. I haven't come anywhere near your part in this, as yet. But there is one thing I particularly want you to remember; like any other piece of electronic hardware, it actually sends nothing but a signal. It is a communications device, not a boxcar. This fact enables us to do more with it than simply send a man from one place to another. Like any other communications device, it transmits information which the receiver converts into a systematic result intelligible to the unaided human senses.

"A radio, for example, does not broadcast voices. It takes the air vibrations from a voice striking its microphone diaphragm, converts these into electronic motion, and transmits the result to a receiver. Each sound vibration has its analogous burst of electrons, and these bursts—these bits of information—are what the receiver is given to work with. The receiver takes them, and converts them into the motion of a speaker cone. The cone vibrates against the air, and produces sounds,

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which the listening human ear interprets as human speech. And so a radio is a speech transmitter —or a sound transmitter, rather. But the work is done by the movements of subatomic particles, which neither you nor I can see at work, or trace in their motions.

"A television transmitter does much the same with the gradations of light and shadow that impinge on the lenses of its cameras. The TV receiver takes its information and systematically excites the phosphors of the picture tube. We see a moving picture, and so in a sense a television transmitter is a picture transmitter. But, again, what is actually being transmitted is information.

"There is no physical movement of a voice or an image through an electronic device. In the same way, there is no movement of a man through the apparatus down here.

"The scanners, vectoring on each particle of the atoms that make up the man, detect the motion and arrangement of those particles. This is expressed as data, in the form of electron bursts, which the machine then transmits to a receiver. The receiver takes similar particles from a local supply, and manipulates them into identical arrangements and motions. The process proceeds at the speed of light, over a near-infinite bandwidth. No activity within the human body takes place at that speed. Therefore, the original man is torn down by the scanner and an identical man is built up in the receiver so rapidly that no sensation of dissolution can possibly occur. A man entering the transmitter can have a half-completed thought—that is, a half-completed movement of electrons along a chain of brain cells—and the man in the receiver will complete it. He will complete it without a jar, even though there might have been a transmission lag of moments, or days, or even years, if we transmit from a tape, because for him the process will have been instantaneous. He will be the original man in all respects, with his memories, his personality, his half-exhaled breath of air —except for one thing; not one particle of his body will be the same as the particles in the body that was scanned. That body is gone—torn down and converted into the energy that drives the transmitter. It has to be that way. We can correct perfectly for the impact of the scanning beams themselves on the particles of the original body, but the impact must exist—there has to be resistance for the scanners to feel."

Barker leaned back. "And that's how I die? But it's not real death, as long as I don't feel it and can step out of the receiver. What do I care where my particles come from?"

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"That's not how you die. You're quite right—if a man can step out of the receiver and feel himself to be the same man who went into the transmitter, you could say that for all practical purposes no one has died.

"No, that's not how you die. What I've described to you is the experimental system Continental Electronics set up last year, and which was scheduled to begin experimental line-of-sight wireless transmissions to a receiver in the Sierras, some time right about now. Everything was going smoothly, for an experimental project, and we were even beginning to think of setting up a corollary staff to begin theoretical research into exactly what electrons were being manipulated, and how, to reproduce what portion of the scanned object. It was my hope that sometime within my lifetime we would be able to manipulate individual electrons without the use of billion-dollar equipment covering several city blocks.

"All that is temporarily gone by the board. We're on a crash footing, here, and the thing we're after is practical results, nothing else. And that happened because of this."

He reached into a desk drawer, took out a map, unfolded it, and laid it down on the desk, facing Barker. "This is a map of approximately fifty square miles of the surface on the other side of the Moon."

Barker whistled softly between his teeth. He leaned forward. "Rough country," he said, looking at the painstakingly drawn hachure marks. "How'd you get this?"

"Topographical survey." Hawks touched a black-lined square on the map. "That's a Navy base. And this—" he touched an irregularly-shaped black area near the square—"is where you're going."

Barker frowned at it. "This what you showed me that ground photo of?"

"But that came a good deal later. Very early this year, the Air Force obtained one radioed photograph from a rocket it attempted to put into a Lunar orbit. The attempt failed, and the rocket crashed, somewhere beyond the edge of the visible disk. But that one photograph showed this."

He took a glossy enlargment out of its folder and passed it to Barker. "You can see how bad its quality is: almost hopelessly washed out and striated by errors in transmission from the rocket's radiophoto transmitter. But this area, of which a part is visible in this corner, is clearly not a natural formation."

Barker raised his eyebrows. "Whose?"

"No one's. No one's on Earth. We know that, and nothing more about its origin." He looked across

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the desk. "I'm deadly serious, Barker. So was the government. With rocketry in its present state, there was no apparent hope of investigating that formation before the Russians did. There was therefore every expectation that the Russians would be able to make a first-class scientific discovery—almost certainly one that would tip the balance decisively; possibly one which might involve the entire world in traffic with extraterrestrial beings. It was vitally necessary that we somehow get there first; find out what that thing was, who put it there, and why."

"So you went on a crash basis."

"Precisely. After repeated attempts, the Army managed to drop a relay tower on the edge of the visible disk, and a rudimentary receiver fairly near the unknown formation. A man was sent through to set up another receiver which would accommodate construction and exploration equipment; the Moon project began."

"And what did it find out?"

"About the formation? It found out it kills people."

"In unbelievable ways, Doctor? Over and over?"

"Characteristically and persistently, in ways beyond the comprehension of human senses. I'm the one who kills them over and over."

Barker and Hawks looked at each other. Finally, Barker smiled. Hawks frowned, and said:

"The Lunar formation has been measured. It is roughly a hundred meters in diameter and twenty meters high, with irregularities and amorphous features we cannot accurately describe. We know almost nothing of its nature. But the first man to investigate it —the man who first went up through the small receiver—went into it against orders while waiting for the Navy crew to come up. He wasn't found until several weeks ago. His was the second photograph I showed you. His body was inside the thing, and looked to the autopsy surgeons as though he had fallen from a height of several thousand meters under terrestrial gravity."

"Could that have happened?"

"No."

"I see."

"I can't see, Barker, and neither can anyone else. We don't even know what to call that place. The eye won't follow it, and photographs convey only the most fragile impression. There is reason to suspect it exists in more than three spatial dimensions. Nobody knows what it is, why it's located there, what created it. We don't know whether it's animal, vegetable, or mineral. We don't know whether it's somehow natural, or artificial. We know, from the geology of several meteorite craters that have heaped rubble against its sides, that it's been there for, at the very least, half a million years.

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"We need to determine, with no margin for error or omission, exactly what the formation can do to men. We need to have a complete guide to its limits and capabilities. When we have that, we can, at last risk entering it with technicians trained to study and disassemble it. It will be the technical teams which will actually learn from it as much as human beings can, and convey this host of information into the general body of human knowledge. But this is only what technicians always do. First we must have our chart-maker.

"It's my direct responsibility that you are now that man; it's my direct responsibility that the formation will, I hope, kill you again and again."

"Well, that's fair warning even if it makes no sense. I can't say you didn't give it to me."

"It wasn't a warning," Hawks said. "It was a promise."

Barker shrugged. "Call it whatever you want to."

"I don't often choose my words on that basis," Hawks said. He picked up another folder and thrust it into Barker's hands.

"Look those over. There is only one entrance into the thing. Somehow, our first technician found it, probably by fumbling around the periphery until he stepped through it. It is not an opening in any describable sense; it is a place where the nature of this formation permits entrance by a human being, either by design or accident. It cannot be described in more precise terms, and it cannot be encompassed by the eye or, we suspect, the human brain. Three men died to make the chart which now permits other men, who follow the chart by dead reckoning like navigators in an impenetrable fog, to enter the formation. We know the following things about its interior:

"A man inside it can be seen, very dimly, if we know where to look. He cannot see out as far as we know—no one knows what he sees; no one has ever come back out of it. Non-living matter, such as a photograph or a corpse, can be passed out from inside. But the act of doing so is invariably fatal to the man doing it. That photo of the first volunteer's body cost another man's life.

"Any attempt to retrace one's steps within the formation is fatal. The formation also does not permit electrical signals from its interior. You will not be able to maintain communication, either by broadcast or along a cable, with the observers in the outpost. You will be able to make very limited hand signals, and written notes on a tablet tied to a cord, which the observer team will attempt to draw back after the formation has killed you.

"We have a chart of safe postures and motions which have been established in this manner, as well

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as of fatal ones. It is, for example, fatal to kneel on one knee while facing Lunar north. It is fatal to raise the left hand above shoulder height while in any position whatsoever. It is fatal past a certain point to wear armor whose air-hoses loop over the shoulders. It is fatal past another point to wear armor whose air tanks feed directly into the suit without the use of hoses at all. It is crippling to wear armor whose dimensions vary greatly from the ones we are using now. It is fatal to use the arm motions required to write the English word 'yes,' either with the left or right hand.

"We don't know why. We only know what a man can and cannot do while within the formation. Thus far, we have charted a safe path and safe motions to a distance of some twelve meters. The survival time for a man within the formation is now three minutes, fifty-two seconds. And that is almost all we know. We've been going at this thing for months—and it's too slow. It's too wasteful. Our equipment is crude. Our experience is nil. And our time is running out. The recent Russian circumlunar rocket couldn't possibly have shown them anything. The base is camouflaged. In any case, their photographs cover an area of over seven million square miles. The entire Navy installation, and the formation, are contained within an area of about one square mile. But their next show may be in a lower orbit. Or they may put an expedition up there—they already have a telemetering robot installation somewhere on the visible disk. There's no telling what might happen if they found out we were there, and what we're doing. It's got to be finished—and we have to hope we will find something that will give us a decisive edge in very short period of time.

"And so I'm hoping you'll work out better than the other men we've sent into the formation."

Barker grinned coldly. "You mean, I might last a few seconds longer than the average man? And that would be a significant gain?"

"No, Barker," Hawks said tiredly. "No—we developed a system. There is no reason why we cannot transmit your signal into two receivers, one on the Moon and one here in the laboratory. That way, we have two Barkers; call them Barker M and Barker L, for convenience. Barker M goes into the formation, does what he can, and dies. Barker L remains in the laboratory, and lives, and furnishes us with two new Barkers the next day."

Barker whistled softly, again. "Foolproof."

"Foolproof, and too slow. We gain very little by it—Barker M might prove a little tougher than the average volunteer. I doubt it. They've been very good men. But in any case, all we'd get from him

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would be the same driblets of information we've gotten before. That's not enough. No, we modified that system some time ago.

"You see, we found out something. We found that the M and L volunteers showed signs of confusion when they emerged from their respective receivers. For a short time—a moment—the L volunteer behaved as though he were on the Moon, and vice versa."

Barker's eyes widened. "You're kidding—"

"No. Apparently, since so many of the environmental conditions were the same—the two men were both in their units, remember—and since they had identical brains with identical thought chains—we had stumbled on a limited, almost useless form of—" Hawks' mouth twitched distastefully—"telepathy.

"We worked with it. We began introducing a high order of similarity into the M and L environments, and then we arranged the suits so that the L volunteer's sensory receptors would furnish his brain with no data. We stopped up his eyes and ears. We deadened his skin. We partially narcotized him. As we hoped, his brain began hunting for data, as any brain will if it stops getting continuous proof that it is alive. It had only one place to find that data—in the sensory impressions that were registering on the M brain.

"The contact fades, of course. Soon enough, despite anything we can do, the L brain begins to record a trickle of stimuli which come from its own body, and the contact fades sharply. But we can maintain it for nearly twelve minutes, which is more than enough.

"So," Hawks finished, "now we have a means of instantaneous, complete communication with the M volunteer. The L volunteer's brain records everything he feels, everything he sees, everything he thinks. And the information remains there, after the M volunteer dies, and could be extracted by interviewing the L volunteer.

"There is only one drawback. When the M volunteer dies, the L volunteer shares his feelings." Hawks looked steadily at Barker. "Rogan. And others before him. They go insane, and the information is lost. So that's your special qualification, Barker. No man can stand to die. But we're hoping you won't go mad when you feel it. We're hoping you'll enjoy it. Over and over again."

Barker straightened his shoulders into perfect symmetry, threw the folded windbreaker half across his back, and stepped past Hawks into the laboratory. He walked out a few feet into the main aisle between the the cabinets holding the voltage regulator series and put his hands in his pockets, stopping

(continued on page 78)

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Readers who like only those stories with beginnings and middles and ends, in which everything is clearly explained, may not be fully satisfied with the following. On the other hand, we have read a number of novels which have had less to say about life and love and snakes.

The Way Out of Town

by Winona McClintic

I WAS ASLEEP WHEN THE snakes first appeared. No one can say what time it was, or whether they all came out of the ground at once. It must have happened sometime at night. We first saw them in the morning. They blocked the roads out of town; we could not drive from our suburb along the freeways to other towns or to the city. There were two ways out of town and the snakes reared up at both places.

I called my company and told them that I would be in tomorrow, as soon as the authorities had taken the snakes away. I learned then that all sections of the city were isolated. People who lived near their offices were able to go to work. None of the rest of us could get in. We all thought it would be a matter of a day or two, even after we heard that snakes had appeared all over the state. I called Cress at once and told her that I would come to her house as soon as I could. She had not seen the snakes yet.

"Rattlesnakes?" Cress asked. Women are always afraid of rattlers.

"No, big ones," I said. "Maybe they do rattle, but we can't hear them. Their tails are stuck in the ground."

"I'll go out and look at them and call you back," Cress said.

I spent the day pottering about. In the afternoon I drove down to the highway with the people next door. Crowds had come out of houses to see the snakes, and the local police kept them back at a safe distance. The gigantic scaly bodies reared up high into the air, gleaming like metal in the sunlight. The heads were in the ground and so were the tails; only the middle parts of the bodies formed the loops and coils. The people were silent, awed rather

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than excited. We went home quietly to wait until the police could move the snakes or destroy them.

Cress called me right after dinner. "I think they're advertising something," she said; "maybe it's a colossal television spectacle about Adam and Eve."

"They neglected to inform the police, if so," I said. "Or do your police know all about it?"

"My police have nothing to say," Cress said. "I think they're in the pay of the moguls. Advertising is 'big business'."

I said that these snakes were, too, and then we talked of this and that for a while. We changed our plans about going to the zoo on Sunday. We would go to the beach, unless it rained. The rain began that night.

No one went to work the second day. We heard that the government was taking steps. Questions were asked in the State Legislature and answers were printed in the newspapers. Supplies were dropped to us by airplanes or brought in wherever there was a place to land, but no one got out except the plane crews. The snakes had closed the highways in the places where there were no houses.

Cress was annoyed when I called her in the afternoon.

"We haven't got enough airplanes," she said; "why doesn't the government build more airplanes?"

"They're building them as fast as they can," I said.

"I can't sit around like this," she said. "What should I do?"

"Don't try to go past the snakes, whatever you do," I said. "They say that dogs are disappearing."

Everything would be taken care of as soon as the government sent us explosives. A man at the drugstore told me that one highway in the mountains had been cleared by dynamite and the clerk at the cleaner's told me that the snakes were dying of a plague. Her mother-in-law ten miles away had told her this in the morning. There was not much to do in the afternoon, so we all went down to the vacant lot by the school and watched a plane landing. The pilot looked tired and the crew was cross, as it unloaded one day's supply of food.

I visited all the stores and went home again. I was keeping my cat, Pan, shut in the bathroom; he was sharing my relief-fund food. It seemed wiser to hang on to the canned kitty-food until the snakes had left. As we ate dinner together, I heard a loudspeaker-truck making the rounds of the neighborhood. I went out on the porch and listened; we were all to line up at the city hall for inoculations at 8:00 a.m. The truck was going so slowly that I was able to catch up in one block.

"Shots of what?" I asked the driver.

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"Plague," the driver said. So, I had something to tell Cress. I dialed her number but she did not answer. I read a science fiction magazine and took a shower. Just as I came out, the telephone rang.

"I called you a while ago, but you didn't answer the phone," I said.

"Sorry," Cress said, "I was arranging something. Very clever of me, too."

"Arranging what?" I asked.

"You'll see," she said, "I did it for you. Are your snakes still there?"

"All of them," I said, "or it. There seems to be a doubt about how many snakes are on duty. I think it's only one, myself. Unless they're all the same colors."

"I think it's an invasion from outer space," said Cress. "Have you considered that?"

"Well, that's hardly possible," I said, "they came up out of the ground."

"That's what they want us to think," Cress said, inscrutably. We talked of other things, and I told her that I would call again after my shots in the morning. I was afraid they might put our animals in cages under observation. Pan, like me, was used to roaming free.

In the morning Cress had a new theory. "Maybe they have rabies," she said; "after all, with their heads under the ground, we could hardly tell, could we? Unless they came up and foamed at us, or something. What did the serum feel like?"

"They gave us five injections, all different," I said. "My arm is red and swollen and my back aches. They might have been anything."

"Or strange, undiscovered viruses from outer space," Cress said. "The government's trying to fool us about these snakes. I have to go for my shots now. I'll probably be sick from them, so don't bother to call until you hear from me."

I had a surprise that afternoon when I went down to watch the planes unload. One of the crew members beckoned to me and pulled me behind a crate.

"Don't I arrange good?" Cress said. "How's Pan?"

"Very good," I said, "now how are you going to get out again?"

"Same way, same pilot," she said. "He's sort of a friend of mine, now. We have the same snakes. Don't you think he looks sweet?"

I observed the pilot closely and saw nothing of sweetness, only a rugged efficiency and a tired, though triumphant, look of responsibility.

"His nose is crooked," I said.

"Oh, I told him I'm going to marry you," Cress explained. "He is doing this for us because he's a sincere romantic, deep down beneath that light-hearted exterior."

I saw nothing of that quality,

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either. I suggested that she come to the house with me; her good friend could take her back tomorrow, or next week.

"Unless he disapproves," I said.

"I'll ask him," she said. This arrangement was apparently all right with the flyboy. His name was Daniel Meade; he gave us his telephone number and the hours when he could be called.

Cress and I spent a pleasant week watching the news broadcasts and reading contemporary literature. Cress devoted the reading hours to science fiction stories, while Pan slept by her feet.

"It's so true," she said, "compared to those lies the government is telling us. I don't believe they have moved one single snake."

"They have to wait for appropriations," I told her. "It takes a lot of money to move snakes that size. Dynamite would be dangerous in populated areas."

"Well, why don't they evacuate us," she asked.

"To where?" I said. "The whole state is snaked under."

Still, Cress had a point. Congress, after arguing about States Rights, had adjourned for several months. The armed services and the state militia expected orders hourly.

"We really can't complain," I said, "They are feeding us, they have kept the plague down."

"Plague, smague!" Cress said. "I want my rights!"

"We ought to get married now," I said. "It might be a year or more before all the snakes are gone."

"Not without my clothes," Cress cried. "I can't get married in dirty old dungarees. I have to go back and get them."

"How much do you think they would let you smuggle in?" I asked. "You can buy clothes here in town."

"All I want are my cashmeres, a few skirts, three or four pairs of sandals, and etcetra," said Cress. "I can bring one suitcase in, easily. I'll call Dan."

She flew off the next afternoon in her dirty old dungarees. I watched her climb aboard, and she and Dan waved goodbye together. Still, I knew that the same plane would be back the next day; then, Cress and I could wave to Dan together. He deserved it.

I was hardly in the front door when the phone rang. Cress was having a little trouble about coming back.

"But, it will mean only a few days' delay," she said, sounding sad. "You see that, don't you?"

"How many days?" I asked.

"Three or four, I think, but Dan is sure he can bring me in again. He's awfully reliable."

"I'm sure he is," I said.

"A preacher on the television said that the snakes are a judg-

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ment on us for our sins," Cress told me. "He said that he read it in the Book of Revelations. Do you think that's true?"

"It was a beast," I said. "I don't remember any snakes."

"Well, everyone in my section is reading the Bible and going to church," Cress said.

"My people are praying to have this affliction lifted from us," I admitted, "but I think the government ought to do something, too."

"That's the trouble with the government," Cress said, "no faith. How's Pan?"

We talked on the telephone every evening for a month, and each time Cress was sure that she would be back in a few days. After Dan's transfer, Cress tried to fly in with one of his friends. The difficulty was to get her on the crew list, but she and Dan were working on it.

The weather was uniformly gray, and a light rain fell all month. Mist came at night, and dew in the morning. The snakes liked it to be wet. You could tell that from the way they moved, soaking in the soft rain and swaying in the mist. They must be native snakes, we thought, since they appreciated the weather so much. Everything grows larger in this state, too.

We were able to vote one last time before they cut off the broadcasts. Having no news reports gave rise to rumors even more fantastic. The druggist told me quietly that he believed the rest of the country had seceded from us.

"But they're still feeding us," I said.

"A drop in the bucket!" the druggist said contemptously. "Look what they're saving on highways!"

When Cress called for the last time, I knew her answer before she spoke it.

"If you will just wait a couple of weeks . . ." I said. Anyone should be able to wait a short time before deciding which life to live.

"It won't be a couple of weeks", Cress said, but she sounded sad. "I don't think they are ever going to do anything about the snakes. I can't spend my life waiting for snake-remover to be invented. I'm doing the only sensible thing—I'm adjusting."

"But what if they do find a snake-remover," I argued, "then what will we do? If you marry Dan, and I come to see you and hang around and make you dissatisfied with your life, and urge you to leave him?"

"I'm a very loyal woman," Cress said firmly, but she sounded sad. "If I marry Dan, I will be true to him."

"I'll keep calling you on the telephone and disturb your sleep," I said. "You'll have to move and then the operator will tell me your new number."

"If the telephones keep work-

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ing," said Cress, very sad. She hung up.

I put the cat in the car and drove through the rain, all around the town. Anguish is an impossible emotion for feeling purposes. The grayness settled over the car and over the town, and I turned on the windshield wipers because of the fog from the ocean. I drove the car for hours that day, and on the next day, looking for the road everywhere, but there was no way out of town.

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The Agretians sentenced Grainger to 20 years—so much better, Chung Li pointed out, than one or two years.

ROPE'S END

by Miriam Allen deFord

IT ALL HAPPENED SO FAST THAT it was over before Grainger became actually aware of it. One second he was driving his groundcar slowly and carefully down the main street of the City, and in the next the young Agretian had darted in front of it, stumbled, fallen under it, and lay grotesquely dead on the metal roadway.

Shaking, Grainger stopped and walked back to where the victim lay. A *heldehar,* one of the infrequent Agretian guards or policemen or soldiers—they were all three—pushed through the excited crowd and stood over the mangled body. Grainger went up to him and touched his big arm.

"I never saw him!" he gulped, fighting to contain his nausea. "He ran right into my path, and before I could make a move he—he—" He had difficulty finding enough words in his poor Agretian to make sense of what he was trying to say.

The *heldehar* looked at him.

"You are Warren Grainger, the Terran," he said—not asked; in the City everyone knew everyone else at least by sight. "This young man was alive and now he is dead. Your *brondun* killed him."

"But it wasn't my fault—I couldn't help it. Ask any of these people—they saw."

"They saw, and they will speak. Be at the Hall of Judgment tomorrow two hours after sunrise, and you will receive your sentence."

Grainger felt a surge of relief at the words. If they weren't going to arrest him, if they were simply calling him to a hearing, the worst he could receive, he was sure, would be a reasonable fine. He knew nothing of Agretian law; in the two years that he had lived here there had been no crimes that he had heard of, no notice of trials in the daily news flashed on the screen in the Central Square. The spectators parted before him as he climbed back into his car and drove at snail's pace to his office. There all the Agretian clerks

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seemed already aware of the accident, but nobody spoke of it, though he caught surreptitious glances of curiosity and sympathy.

Nevertheless, as the day wore on, he became increasingly uneasy. When he left the office, instead of going home he drove to the converted residence where Chung Li lived above his business establishment.

Chung Li and he were the only Terrans with permanent residence permits, the only Terrans living in the section of the City given over to aliens. They were scarcely friends; they were not even rivals, for the elderly Chinese had owned and run his export and import business for 15 years before young Grainger had sold the Agretians on permitting him to settle in the City as a competitor in the same line. Even though Chung Li obviously had more business than he could handle, he had resented the arrival of another claimant for the valuable Terran trade, and had shown his resentment openly. But surely, Grainger thought, he would not refuse to enlighten and help a fellow-terran in serious difficulties. There was no one else to appeal to nearer than the Solar consul, two star systems away.

He found Chung Li in his private rooms, furnished at enormous expense in the style of the rich Chinese of 500 years ago, before the revolution. A huge Agretian servant announced him, and it was in Agretian that the two men spoke, having no other language in common.

Ordinarily, Grainger knew, no conversation with Chung Li started without formalities. But by now he was too upset to stand on ceremony. "Chung Li," he blurted, "I'm in trouble."

"I know," said the Chinese gravely. "I have heard."

"Then you know it was an accident, pure and simple. What are they going to do to me?"

Chung Li paused before he answered, to light a pipe filled with that immensely valuable import, tobacco. When he spoke, his rejoinder seemed irrevelant.

"Have you seen sometimes in the streets of the City, fellow-Terran, people who wear around their necks a loop of steel rope?"

"Why, yes, I think so—a few. I took it for some badge of office."

"They are people whose deeds caused the death of another. Two of them I know—the captain of a fishing boat which by his bad seamanship was swamped, drowning his crew of three, and a nursemaid who let her charge slip from her arms to fracture its skull. They must wear the rope for the length of their sentence."

"And that's all? I suppose it means social ostracism—but surely not professional ostracism too, or they couldn't earn a living."

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"It does not mean ostracism at all. Nobody will reproach you, or wish you ill—not even the relatives of the young person you killed. They will pity you."

Grainger laughed.

"As I have no social relations with any native, that certainly won't bother me! But if that's the way they punish people who kill others accidentally, what do they do to real murderers—execute them on the spot?"

"There are none. No Agretian within recorded history has ever murdered or deliberately injured another. As for what would happen if, say, you or I should do the other in, or any other resident alien should murder another alien —" Chung Li smiled briefly— "I can't imagine; they have no provision for such a crime. Revoke his papers and send him home, I suppose."

Warren Grainger breathed a relieved sigh as the last of his burden slipped from him.

"Thanks a lot, Chung Li," he said fervently. "You've put my mind at rest. I'll be able to sleep tonight—if I can get the memory of that poor devil I ran over out of my mind."

Chung Li gazed at him meditatively.

"I shall be at the hearing tomorrow," he said. "Afterwards we will go and drink a cup of *chash* together and discuss this further, when we know how long your sentence runs. . . . "I forgot to mention one thing—every year of your sentence you must report to the Hall of Judgment and let them adjust your neck-rope."

"You mean, to prove I haven't taken it off?"

"You can't take it off. It is riveted on."

The hearing was so short and so cut-and-dried as to seem perfunctory. Grainger heard his sentence pronounced and stood submissively while the thin steel rope was fastened about his neck. Chung Li had been mistaken; it was not riveted on. It extended almost to his waist, and he resolved to take it off whenever he was alone, though it would be politic to wear it in the office and on the street, at least until the affair had been forgotten.

The Chinese was waiting for him at the back of the courtroom. An Agretian couple stood by him, their size dwarfing that of the Terrans.

"Grainger," said Chung Li, "these are Vark and Aidunn. They are the parents of young Makar, who died yesterday."

He felt himself turning pale, then reddening with emotion.

"I can't tell you how much—" he stammered in his bad Agretian. "I—I don't know how to say how terribly I regret— If—I know all the money in Agretia couldn't make up to you—but if you'll let

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me help with the—the expenses—"

His business caution brought him up short. He had meant, of course, to search out the relatives of the victim and make what recompense he could, but now he was laying himself open to some exorbitant claim that would be worse than any fine.

The two shook their heads. Vark spoke for them both.

"It was no fault of yours," he said. "Fate so willed it. He was our only child."

The mother laid a big six-fingered hand over his.

"We came—we asked to see you—only to say how very sorry we are for you."

Grainger stared at her, speechless. They both bowed, turned, and left silently, arm in arm. Dazed, he followed his fellow-Terran out of the building.

In the nearest inn, over the mildly inebriating *chash,* Chung Li broke their silence.

"Twenty years," he said. "That is very good."

"Good? You mean, compared to forty?"

"I mean compared to one or two."

"What are you talking about?"

"Would you prefer to die young?"

"What in high space do you mean?"

"As I told you, and as you heard the judge tell you this morning, every year you must go back to the Hall of Judgment and have the rope adjusted. What do you think the adjustment consists of?"

"What?"

"Every year the rope will be shortened by one-twentieth."

A cold chill swept over Grainger's body.

"But—but then at the end of twenty years—" he faltered.

"Yes," said Chung Li calmly. "At the end of twenty years it will strangle you."

Impulsively Grainger reached to draw the rope over his head and throw it from him. It clung immovably to the back of his neck. White with shock, his eyes questioned the other man.

"When I said 'riveted,'" explained Chung Li softly, "I did not mean a metal rivet. There is no way in which the rope can be removed from you, my friend. I do not know how it is done."

Grainger jumped to his feet and glanced around him wildly.

"I won't stand it!" he shouted. "They can't keep me here—I'll get away somehow—I'll appeal to the Solar consul."

"Read your permit papers, Grainger. One of the things you agreed to was to obey the laws of Agretia, just as if you were a native of the planet."

"Then I'll escape."

"How? Where to?" Chung Li's voice was gentle. "This is the only town of any size on Agretia. There

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is only one spaceport. Nobody enters or leaves without inspection by the *heldehars*. No Terran captain would dare let you secretly on board, no matter how you bribed him; he would lose his license. If you managed to stow away he would turn you in; if you got away on Terra or any other planet you could live on, the authorities would have to send you back, by the terms of the Federation agreement.

"Believe me, if it were possible for me to help you escape, I would. I should then have a monopoly again."

"Then I'll die—I'll kill myself!"

"You are free to do so. But it seems rather foolish. At your age, and in your good health, you are now reasonably sure of 20 years of peace and comfort: why cut them short? Of course you will not be allowed to drive a *brondun* again, but that is a minor inconvenience. Otherwise, you will live just as you have been living—only you will know the maximum span of your life—an advantage few of us possess. I am sure I shall be dead long before you, but it does not worry me. You may even marry and leave children, if you can persuade some young lady on Terra to come here to you, under the circumstances.

"For of course, my friend, you must be an exile forever. You will never see our home planet again."

Habit accustoms us to anything in time. After the first few months, Grainger grew used to the rope. After a year or two, he ceased having nightmares from which he woke sweating and screaming. At first he worked hard in order to forget; after a while he began working hard because business had always been his whole existence, and because he liked making money and living in comfort, even if there was no one to leave the money to and the comfort was only the alleviation of a certain doom.

He did not even consider Chung Li's last advice—to join some Terran matrimonial club (since there was no woman in his past whom he could think of as his wife, or who would be likely to desire him as her husband) and establish a family while his children could still be nearly grown before their father died. Terrans and Agretians could not interbreed, but the *calubari*, the Agretian hetairae, were satisfactory enough for what needs he did not drug with toil.

Four years went by, and he was almost adjusted to the necessities of his fate; sometimes he did not think of it for days on end. Chung Li died suddenly, and Grainger inherited his business; doubtless a new competitor would get a residence permit some day, but so far he was able to handle the older Terran's trade and his own as well.

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And then something occurred that he had never anticipated. He fell in love.

Tourists were rare on Agretia—it was not an interesting planet, either scenically or historically. But every ship brought in some visitors—commercial representatives, journalists, scientists, scholars and research workers of one sort or another.

Luvina Nilsson was a physical anthropologist. She had a Foundation grant for a year's analytical study of the Agretians. She came in on the *Starfarer* four years from the day when Warren Grainger had accidentally killed Makar. She was tall and slender and blonde, with delicate features but a warm, generous mouth and steady grey eyes. Grainger met her the day she landed—the small alien colony was like a neighborhood club. Something happened to him that had never happened before—something he had never believed could happen. Suddenly this slim girl became as necessary to him as air and water. And even in his newfound self-depreciation he could not ignore her instant response.

He had never been a coward, and he had always been honest. He was not simply in love with Luvina; he loved her. Before she could become too deeply committed, he told her his story. It was the hardest task of his 33 years.

For answer, she threw her arms around his neck. She did not seem to notice the thin metal rope that already encircled it.

But later, when they sat in the close embrace that followed the avowals and the kisses, she burst passionately into speech.

"We'll find a way out, dearest!" she cried fiercely. "You'll get free somehow! I won't give you up after only sixteen years!"

"I would rather have sixteen days with you—" he began brokenly. His mouth sought hers again. "Marry me soon, my darling—we have so little time."

"I'll marry you tomorrow, or as soon as the silly laws of this place allow. But I won't give up—there has to be a way out, and I won't rest till we find it."

"There *is* no way, sweetheart. I've tried and tried. Chung Li was right. If you'll have me, then you must reconcile yourself to being a widow in sixteen years at the most."

But in his heart a little fire was lighted that he had never thought to feel again. Its name was hope.

They were married by Agretian law and ceremony, since no other was available, and Luvina moved in to his bachelor apartment. On their wedding night they took a pledge to let their first year go by without concern for the future. Luvina would go ahead with her project, under her grant, measuring, weighing, and classifying the Agretians, analyzing their resem-

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blances to and differences from Terrans. Warren would conduct his growing import and export business and do his best to make it grow more. Neither of them would talk, or, if they could help it, think about the rope around his neck or the doom awaiting him.

"But don't think I'm forgetting," Luvina said firmly, "I'm willing to spend the rest of my life on Agretia; I'm willing to carry on my work here as best I can; but I want your children, and I want them to have a father. I'm not going to give you up. And I'm not going to start a family till I know I'm going to keep you."

So the months passed. It was not hard for Grainger to keep his part of the compact; he had long ago exhausted himself seeking vainly for some way out of the trap. Luvina never spoke of it, but he knew her mind was busy with the problem, and that she like him could find no solution.

And then came the fifth annual reminder, and another twentieth of the rope was cut and the shortened halter fastened again, by that secret method he could not fathom, immovably to the back of his neck. The time of their pledge of silence was over, but both of them avoided the subject instinctively, since neither would acknowledge despair.

Sometimes he saw on the streets of the City others who wore his mark; he grew familiar with their faces, noticed the shortening of their ropes. Some of them had disappeared. He asked no questions; he knew what had happened to them.

Luvina's study was finished. The Agretians had been most cooperative, and had submitted patiently to her calipers and scales and questionnaires. Grainger helped her assemble the charts and tables, the tapings of her conclusions, ready to send the material to the Foundation by the next Terra-bound ship.

"You haven't discussed your findings with me at all," he complained. "Don't you think I'm interested?"

"There was nothing to discuss till now, darling. A lot of it is drearily technical, and it wouldn't mean any more to you than your shipping manifests would mean to me. But the summary might interest you—this section here."

"Then let's play it back, so I can ask questions. After all, I have to deal with the Agretians all the time; the more I can learn about them the better."

"All right, I'll put it on for you. It will be a help to have someone else listen and comment, anyway—it might give me new insights that would let me make last-minute improvements even now."

We're both talking at random, Grainger thought bitterly. The time has come when we must face

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something so much more important to us, and we're both putting it off, because there simply isn't any solution—there can't be—and we'll have to make ourselves accept it. Perhaps—a stab of fear pierced him—perhaps it will be too much for her, perhaps she will leave me, go back to Terra.

This wouldn't do. He forced himself to attention.

"At the outset, some generalizations can be made. The natives of Agretia are not merely humanoid; they are, in all essential respects, human—another species of human being from *Homo sapiens*, but distinctly the product of the same evolutionary forces.

"They have six-fingered hands and six-toed feet. Their circulatory and eliminative systems vary in some respects from ours. Their period of gestation is 11 months, and there are minor variations in the reproductive apparatus. There are significant differences in the cerebral cortex. These matters will all be discussed in detail.

"The most obvious difference at first sight is that on the average the Agretian, both male and female, is distinctly taller and heavier than the average Terran of even the tallest races. (See Chart CCVII.) The average full-grown Agretian male is seven and a half feet tall and weighs between three hundred and fifty and four hundred pounds. The musculature is consonant with this height and weight; they have large chests, heavy hips, wide shoulders, big arms, legs, and necks. Their heads—"

"Turn it off!" Grainger yelled. *"Turn it off!"*

Bewildered, Luvina closed the circuit.

"What is it?" she cried. "Is something wrong? Are you sick?"

He stood there trembling, hardly able to speak.

"Their necks," he croaked. "Their necks—"

She frowned in puzzlement. Then suddenly she saw it too.

"Oh, Warren! Their necks are twice as thick as ours," she gasped. "It figures—they're used to their own size—How long was the rope when they first put it on you? Quick, let me measure it now."

She dashed for the measure, wrote down the figure with clumsy fingers.

"It's been five years. It's a quarter shorter than it was, which makes it originally— And a twentieth of that, taken off each year —let me see—"

He was there before her; they looked at each other with shining eyes.

"And 15 times more besides this still will leave—"

Another hasty calculation. Then she was sobbing in his arms, and his own tears were dropping on her blonde head.

"There'll still be a good twenty-five inches left at the end of the

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twenty years," he whispered. "They've estimated for—what is their average neck-size?"

"About twenty-eight inches."

"And mine is sixteen. They figured it for their own size."

"Won't they come to realize it later, and cut off more each time?" she asked fearfully.

"They can't. Maybe they realize it already, but Agretians are absolutely law-abiding, and they never change their rules. There's nothing they can do, fifteen years from now, but remove the rope forever. My sentence will be served. They'll have to set me free."

And they did—fifteen years later to the day on which they had shackled him. It was quite a ceremony. Grainger went to it accompanied by Luvina and their three children. By this time he spoke Agretian as fluently as his Agretia-born youngsters. And he had planned his speech, full of resentment for the ordeal he had undergone before Luvina's penetration had opened his eyes.

For an instant his neck felt bare and awkward, bereft of the rope it had worn so many years. The officiating judge who had removed it held out his arm, palm up, in the Agretian gesture of congratulation.

"You have borne your burden of shame bravely and modestly, Terran Grainger," he said. "It must have been hard to endure so long the pity of your fellow-beings."

Grainger stared at him, his planned speech frustrated.

"But—but haven't you noticed," he stammered at last, "that they made the rope too long—that it didn't work the way they intended?"

The official looked puzzled.

"It was measured for your neck, not for our larger ones," he explained.

"Do you mean," asked Grainger, amazed. "that if I had been an Agretian it would have been still longer?"

"Of course—we have no desire to cause anyone physical discomfort."

"But then—at the end of the sentence it could never have strangled me!"

It was the judge's turn to be astonished—and offended.

"Strangled? What made you think that we would purposely kill a human being?"

Confusedly Grainger repeated what Chung Li had told him so long ago.

The judge was young; he did not remember Chung Li.

"But this Terran—you say he was your rival in trade? He resented your presence here?"

"Yes, but when I had my—my trouble, he helped me all he could with his advice."

The Agretian sighed.

"I shall never understand the

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Terran mind," he said. "You seem to delight in deceiving and causing pain to others, and then ascribing it to something you call a sense of humor."

"You mean," cried Grainger, "that Chung Li was just pulling my leg?"

The judge shook his head in bewilderment.

"Your leg? No, he was, in your inscrutable Terran manner which conceals vindictiveness under amusement, merely pulling the rope more tightly around your neck!

In this issue . . .

Some time ago, we announced here that Grendel Briarton was receptive to suggestions for Ferdinand Feghoot adventures, and several quite good ones have since been received. Grendel would be glad to see more, and this is the procedure, if you are interested: Address your suggestions to Grendel Briarton, Fantasy and Science Fiction, 580 Fifth Ave., New York 36, New York, and be sure to include with your suggestion a note saying that you are willing to accept a one-year subscription to Fantasy and Science as full payment for your idea. . . .

"Rogue Moon," Algis Budrys' short novel in this issue, will be out soon, in expanded form, as a Gold Medal novel.

Coming soon . . .

Next month's line-up is not definite as of this writing, but one item which will be included is "Time Lag," an adventurous sort of novelet by Poul Anderson, and another is "The Sources of the Nile," a short novelet by Avram Davidson which concerns a method of acquiring wealth not unlike, but rather more subtle and probable than, getting hold of a regular supply of tomorrow's newspaper.

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YO-HO, AND UP

by Avram Davidson

IT WAS PAST TWO, STARS SHARP and shining in the cold sky, but Andy couldn't wait till morning. He had seen the light in Hank's backyard, and as soon as he had parked the car, that's where he went. Hank was crouched, rasping a hinge with a file. His face was frowning, intent.

"Greetings, Earthman," said Andy. One side of Hank's face quirked, but he kept on at his job. The latest fad; all the 12 to 16 set was working overtime at it. But Andy was past that age. "Hey!" he yipped, eagerly. "Aren't you going to *ask* me—?"

Hank looked puzzled. Then his face changed. "Oh," he said. "Yeah. You and Bitsy-Lee . . . Well—how did you make out?"

Andy told him, in great detail, his voice gloating. "When you're a little bit older," he said, at last, "maybe I can fix you up. She's got this friend, see—" Hank nodded slowly, the file drooping in his hand, as if it were very heavy. Far-off, a light toiled through the sky, was gone.

"And her *father!*" Andy triumphed. "—Almost didn't let us out of the house! I thought I'd—" Another light: meteor. "—or turn *green!* 'Never before have our youths matured so early,' he was yacking, '—voices changing sooner, and so on,' he said; 'and never has it taken so long for them to fill their own niches in society.' Bla-bla-bla. 'Military service, college, post-graduate, high cost of living, anxieties and tensions—' Oh, well, hell with *him. She—*"

Hank put the file in the tool-box. "No, go on," he said. "What else did he—"

"*Pol*tergeists, is what he was talking about! 'Wherever there's a poltergeist, there's a child emerging from puberty.' Hoo, boy! 'Raw, fresh, sexual energy is being produced earlier, narrowed and channelized in its effect by the circumstances of our society—' And so on. 'Like a blast furnace!' the old man said. —Boy, we did some blasting ourselves, Bitsy-Lee and me," he muttered. "We—"

He stopped. The tool-box moved across the yard all by itself. His eyes, wild, met Hank's. "You can do it," the kid said. "Try. *Try!*" Something stirred in Andy: suddenly he knew he could, had known for some time. *It was easy!* Then he groaned. No use. The night and its new-found pleasures had drained him forever. The night—now full of shooting-stars . . . but meteors went *down*, not *up*!

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The tool-box fell with a crash. "Don't strain your milk, Dad," Hank said, mockingly. There was a roar and a burst of light from not far away. Another—and another. "We're off," Hank said. "Boys and girls together." He waved his hand widely. "*This*—it's all yours. But don't try to come after us. Where we're going, we don't want—" His last words were drowned out as he stepped into his home-made "space-ship" and slammed the door. An instant later Andy lay stunned on his back. *He's only a kid!* he thought, wildly; *he never even made out!* But the stars burned and beckoned even after the other lights had vanished.

Through Time And Space With Ferdinand Feghoot: XXXIII

IT WAS Ferdinand Feghoot who saved the Mulch Expedition on Rumjungle III in 3449. Because the planet's intelligent race dreaded gadgets and hated all strangers, the Expedition could use only native equipment—semi-intelligent, specialized fauna the Rumjunglians carried in their carapace-pouches. Instead of a compass, they employed a stick-insect which pointed due North on command.

Two weeks out, with the nearest waterhole a hundred miles off, the guides came up rustling politely. "Now is our egg-whistling time, for the spore-sounds," they declared. "We go now. But you safe, Big Soft Bipeds. We leave point-to-North insect. Very fine, one year guaranteed. Goodbye, thank you." After giving instructions on how to make the thing work, they vanished into the darkness.

For another week, the expedition advanced. Then they found that the stick-insect was pointing everywhere *except* North. They were lost. "But everything's all right," said Professor Hudibras Mulch. "The natives explained. Stick-insects always do this for eight or ten days in the rutting-season. We'll wait. We'll have just enough water."

"No!" Feghoot cried. "I'll pick up a lodestone instead. It's a plot. Look at that insect—they've given us one that's insane!"

"Insane? B-but how can you tell?"

"It's obvious," said Ferdinand Feghoot. "*Non-compass mantis.*"

—GRENDEL BRIARTON

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There has been some grumbling of late in science fiction circles about the dwindling of the sense of wonder. It is true, certainly, that as writing techniques and characterization have developed, flights of imagination have become less soaring. Let us, then, look for a moment outside the field: here is a poem by a man who is not a science fiction writer—he is, rather, chairman of the board of a large corporation and his work-day is devoted to the harsh realities of multi-million-dollar profit and loss. And we confess we find it comforting to think that a man in such a key position has it in him to dream so well.

Infinity

by Rosser Reeves

The probing eye of Palomar
Peers skyward to reveal
A billion molten, fiery stars
In our galactic wheel,
And shows that even this great disc
Is but a firefly burning
Within a much more monstrous wheel,
Slowly, slowly turning.

May not this next celestial wheel
Be but an atom's glow
In some big molecule of stars
In some huge flake of snow?
For may not space flow on and on
From door to opening door,
Like seas that open into seas
And never reach a shore?

If in our atom's tiny flame
A billion stars are whirled,
And millions of these lonely suns
Has each a captive world,
Just follow to the trillionth power
And on beyond to see
What must be true when ciphers link
Down to infinity.

Somewhere red planets swing around
A triple silver sun
And pale, pale rainbows interlock
Their arches one by one.
Somewhere dark girls upon their brows
Grow curving scarlet horns
And ride in tinkling gardens on
Great golden unicorns.

And somewhere rains of diamonds fall
On foaming, milk-white seas,
Where rockets follow streaming light
From star to star with ease,
And soft-eyed girls with honied lips
Swim up to sing and free
Their water-weighted lashes from
Their native, shining sea.

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Great blue-white giant blazing suns
Control a thousand spheres
Where reptiles march in glistening ranks
And fight with jeweled spears,
Where lizards lounge on ivory thrones
And keep to weave and spin,
To clean their overlapping scales,
A smooth-skinned race of men.

Somewhere crustaceans think like Gods
And muse eternal laws
And write the music of the spheres
With clicking bony claws,
Or beetles, fish, and furry things
Emerge as sentient breeds,
Or, working with atomic fires,
Are thinking centipedes . . .

Or coal-black spiders sway in webs
Beneath chill alien moons
And finger gem-like instruments
And strum immortal tunes,
Or serpent men on serpent worlds
Evolve to racial prime
And glide in fourth dimensions where
The riddle solved is time.

For if there is no end of worlds
And nature keeps her laws,
Who knows which life will win which world—
The hands . . . the coils . . . the claws?

So feathered things and crawling things
And creeping things all go
Their separate ways on separate worlds,
Around, above, below.

If God employs infinity
His wonders to perform,
And there's no end of endlessness,
Can there then be a norm?
Would God give souls to sentient beasts,
Or would they still be clods?
If evolution is God's way
Whose image, then, is God's?

An endlessness of worlds implies
A world of every kind—
Worlds where our past repeats itself
Until the end of time,
Worlds where our future's far events
Enact themselves before,
Where every closing portal means
Another opening door.

So if there is infinity,
If endlessness is true,
Somewhere Napoleon walks again
The fields of Waterloo;
And somewhere, always, in the depths
Of time's vast shoreless sea,
Upon the ghastly hill of skulls
Christ hangs upon the tree.

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Having to do with sound . . . with the probable original purpose of vocal cords . . . the intelligence and speech habits of dolphins . . . and an instance in which the ancient Greeks were not wrong.

NOW HEAR THIS!

by Isaac Asimov

THE ANCIENT GREEKS WEREN'T always wrong.

I am taking the trouble to say this strictly for my own good, for when I trace back the history of some scientific concept, I generally start with the Greeks, then go to great pains to show how their wrong guesses had to be slowly and painfully corrected by the great scientists of the 16th and 17th centuries, usually against the strenuous opposition of traditionalists. By the time I have done this on several dozen different occasions, I begin, as a matter of autohypnosis, to think that the only function served by the ancient philosophers was to put everyone on the wrong track.

And yet, not entirely so. In some respects we are still barely catching up to the Greeks. For instance, the Navy is now studying dolphins[1] and porpoises. (These are small-sized relatives of the whale, which differ among themselves most noticeably in that dolphins have lips that protrude in a kind of beak while porpoises

[1] *It is important to establish at this point that The Good Doctor is referring exclusively to the cetacean dolphin. As a fisherman, I feel it important that there be no confusion here with the other, quite different kind of dolphin which is a true fish, whose brilliant colors fade rapidly when he is hauled on board, and whose tender white meat is highly recommended.*

—THE KINDLY EDITOR

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do not. I trust that the eminently consistent Kindly Editor will look the other way while I proceed to use the two terms interchangeably and inconsistently.

Quite recently, newspapers have come out with stories concerning the great intelligence of these creatures, with the air of having discovered something new and startling.

For instance, dolphins never attack men; they may play games with them—they may, for example, pretend to bite—but they do no harm. There are even three cases on record of the creatures guiding men who have fallen overboard back to shore. On the other hand, a dolphin who had earlier played harmlessly with a man promptly killed a barracuda placed in its tank with one snap of its jaws.

Now I'm not sure that it is a true sign of intelligence to play gently with men and kill barracudas, considering that man is much the more ferocious and dangerous creature. However, since man himself is acting as the judge of intelligence, there is no question but that he will give the dolphin high marks for behaving in a fashion he cannot help but approve.

Fortunately, there are more objective reasons for suspecting the existence of intelligence in dolphins. Although only 5- to 11-feet long, and therefore not very much more massive than men, they have a larger and more convoluted brain. It is not so much the size of the brain that counts as a measure of intelligence, as the extent of its surface area, since upon that depends the quantity of grey matter. In the course of evolution, as the brain surface increased faster than space for it was made available, it had to fold into convolutions. The extent and number of convolutions increases as one goes from opossum to cat to monkey to man; but it is the cetaceans (a general term for whales, dolphins and porpoises), and *not* man, that holds the record in this respect.

Well, then, is the intelligence of the dolphin, so clearly advertised by its brain, really a new discovery? I doubt it strongly. I think the Greeks anticipated us by a few millennia.

For instance, there is the old Greek tale of Arion, a lyre-player and singer in the employ of Periander of Corinth. Arion, having won numerous prizes at a music festival in Sicily, took passage back to Corinth. While en route, the honest sailors on board ship saw no reason why they could not earn a bonus for themselves by the simple expedient of throwing Arion overboard and appropriating his prizes.

Being men of decision and action, they were about to do exactly that when Arion asked the

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privilege of singing one last song. This was granted by the sailors, who, after all, were killing Arion only by way of business and not out of personal animosity.

Arion's sweet song attracted a school of dolphins, and when he jumped overboard at its end, one of the dolphins took him on his back and sped him back to Corinth faster than the ship itself could travel. When the sailors arrived in port, Arion was there to bear witness against them and they were executed. (The story doesn't say whether they were allowed to sing a final song before being killed.)

But why a dolphin? Surely if the Greeks were merely composing a fantasy, a shark would have done as well, or a giant sea-horse, or a merman, or a monstrous snail. Yet they chose a dolphin, not only in the Arion tale, but in several others. It seems clear to me that dolphins were chosen deliberately because Greek sailors had observed just those characteristics of the creatures that the Navy is now observing once more —their intelligence and (no other word will do) kindliness.

Oddly enough, the Greeks, or at least one Greek, was far ahead of his time in another matter which involved the dolphin.

Let me backtrack a little in order to explain. In ancient times, living creatures were classified into broad groups depending on their most obvious characteristics. For instance, anything that lived in the water permanently was a fish.

Nowadays, to be sure, we restrict the word fish to vertebrates which have scales and breathe by means of gills. Invertebrates such as clams, oysters, lobsters and crabs are *not* fish. However, the English language has never caught up with the modern subtleties of taxonomy. These non-fish are all lumped together as "shellfish." Even more primitive creatures receive the accolade, which is why we speak of "starfish" and "jellyfish."

By modern definition, even a sea-dwelling vertebrate is not a fish if it lacks gills and scales, which means that whales and their smaller relatives are not fish. To the modern biologist, this seems obvious. The cetaceans are warm-blooded, breathe by means of lungs, and, in many ways, show clearly that they are descended from land-dwelling creatures.

However, they have become so completely adapted to the sea that they have lost any visible trace of their hind limbs, transformed their front limbs into vaguely fish-like flippers, and developed a tail that is horizontal rather than vertical though otherwise superficially fish-like. They have even streamlined themselves into a completely fish-like shape.

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For all these reasons, what is obvious to the biologist is not obvious to the general public, and popular speech insists on calling a whale a fish.

Thus, the song "It Ain't Necessarily So" from *Porgy and Bess* goes, in part: "Oh, Jonah, he lived in a whale / Oh, Jonah, he lived in a whale / Oh, he made his home in / That fish's abdomen / Oh, Jonah, he lived in a whale."

Those of us who are sophisticated and know the difference between mammals and fish by the modern definition, can laugh good-humoredly at the charming simplicity of the characters in the play, but actually, the mistake is in reverse, and almost all of us are involved in it.

The book of Jonah does *not*—I repeat, *not*—mention any whale. Jonah 1:17 (in the King James version) reads: "Now the Lord had prepared a great fish to swallow up Jonah. And Jonah was in the belly of the fish three days and three nights." The creature is mentioned again in Jonah 2:1 and Jonah 2:10, each time as a fish.

It is only folk taxonomy that converted "great fish" into "whale."

And now I am ready for the Greeks again. The first to distinguish cetaceans from other sea-creatures was Aristotle, back about 340 B.C. In a book called "Generation of Animals" he pointed out something that, considering the times, was a miracle of accurate observation; that is, that dolphins brought forth young alive, and that the young dolphins, when born, were attached to their mother by an umbilical cord. Now an umbilical cord implies that the embryo derives nourishment from the mother, continuously and directly, and not from a fixed food supply within an egg, as is the case with, for instance, certain snakes that bring forth their young alive. The umbilical cord is characteristic of the hairy, milk-yielding quadrupeds we call mammals, and of no other creatures.

For that reason, Aristotle classified the cetaceans with the mammals and not with the fish.

Frustratingly enough, where so many of Aristotle's wrong guesses and deductions were held to by ancient and medieval thinkers in a kind of death-grip, this accurate observation which fits perfectly with our modern ways of thinking, was ignored. It wasn't until the 19th Century that Aristotle's statements about the dolphin were finally confirmed.

One thing we have learned recently about porpoises that the ancient Greeks probably did not know concerns the noises they make. Microphones under the sea have shown us that the ocean (surprisingly enough) is a noisy place, with shellfish clicking their

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claws and fish grunting weirdly. However, the cetaceans are the only creatures, aside from man, with brains complex enough to permit the delicate muscular movements that can produce sounds in wide variety. Porpoises do, in fact, whistle and rasp and grunt and creak in all sorts of ways. What's more, they have very well developed inner ears and can hear perfectly all the sounds they make.

No science fiction devotee would be worth his salt if the thought did not occur to him at this point that if porpoises are so all-fired smart and make all those noises, then perhaps they are *talking*. After all, he might argue, what else is such a battery of sound-formation good for?

Unfortunately, there is something aside from communication that sound is good for, and this non-communicative use definitely exists in the case of the porpoise.

To explain this, let me go a bit into the nature of sound, and here once more we have a case where the Greeks got started on the right track (just about the only branch of physics of which this can be said).

Thus, Pythagoras of Samos observed, about 500 B.C., that if two lyre strings were plucked, the shorter string emitted the higher-pitched sound. He, or some of his followers may also have observed that both strings vibrated while sounding and that the shorter string vibrated the faster. At any rate, by 400 B.C., a philosopher of the Pythagorean school, Archytas of Tarentum, stated that sound was produced by the striking together of bodies, swift motion producing high pitch and slow motion producing low pitch.

Then Aristotle came along and specifically included air among the bodies which produced sound when struck. He stated further that one part of the air struck the next so that sound was propagated through it until it reached the ear. Without a medium such as air or water, Aristotle pointed out, man would not hear sound. And here he was correct again.

By the end of ancient times, Boethius, the last of the Roman philosophers, writing about 500 A.D., was comparing sound waves to water waves. (Actually, sound waves are longitudinal, while water waves are transverse—a distinction I won't go into further here—but the analogy is a good one in many ways.)

Long after it was accepted that sound was a wave motion, the nature of light remained under sharp dispute. During the great birth of modern science in the 17th Century, one group, following Christian Huyghens, believed light to be a wave phenomenon, too, like sound. A larger group, however, following Isaac Newton, believed it to be a stream of very small, very fast particles.

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The reason the Newtonian corpuscular theory of light held sway for a century and more was not only because of Newton's great prestige, but because of a line of argument that can be presented most simply as follows:

Water waves (the most familiar of all wave motions) bend around obstacles. Float a stick on water in the path of an outspreading ripple and the smooth circular arc of the ripple will be disturbed and bent into a more complicated pattern, but it will not be stopped or reflected. There will be no ripple-free "shadow" cast by the stick.

Sound also is not stopped by obstacles but bends around them. After all, you can hear a friend quite distinctly if he is calling to you from around a corner or from behind a tall fence.

Light on the other hand does not bend around obstacles, but is reflected by them, and you can see by this reflection. Furthermore, the obstacle produces a light-free area behind it, a shadow with sharp edges that proves the light rays to be travelling in absolutely straight lines. This is so different from the behavior of water waves or sound waves that it seemed clear that light could not be waves but must be particles which would travel in straight lines and would not bend around them.

Then, in 1801, an English physicist, Thomas Young, allowed a narrow beam of light to pass through two closely spaced holes. The two beams that resulted broadened and overlapped on a screen behind. But instead of a simple reinforcement of light and a consequent brightening at the region of overlap, a series of bands or fringes of light were produced, separated by bands of darkness.

Now how could two beams of light unite to give regions of darkness? There seemed no way of explaining this if light consisted of particles. However, if they consisted of waves, there would be regions where the waves of the two light beams would be in phase (that is, moving up and down together) and therefore yield a region of light brighter than either could produce separately. There would also be regions where the two waves would be out of phase (one moving up while the other moved down) so that the two would cancel and produce darkness. This phenomenon of "interference" could be duplicated in water waves to produce exactly the effect observed by Young in the case of light.

That established the wave nature of light at once. (Actually, the modern view of light has it possessing both wave and particle aspects, but we needn't bother about that here.)

Furthermore, from the width of the interference bands and the distance between the two holes

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through which the beams issued, it proved possible to calculate the wavelength of the light waves. The shortest wavelengths (those of violet light) were as short as 0.000039 centimeters; while the longest (those of red light) attained a length of 0.000075 centimeters.

Then, in 1818, the French physicist, Augustin Jean Fresnel, worked out the mathematics of wave motion and showed that waves would only travel about obstructions that were small compared to the wavelength. A stick does not stop a water wave, but a long spit of land will, and even in a storm, a region of the sea protected from open ocean by such a spit will remain relatively calm—in a wave-free "shadow." In fact, that's the whole principle of harbors.

Conversely, objects visible to the naked eye, however small they may be, are large compared to the wavelengths of light, and that is why light waves don't bend around them, but are reflected and cast sharp shadows instead. If the obstructions are only made small enough, light waves *will* bend around them (a phenomenon called "diffraction") and this Fresnel was able actually to demonstrate.

Now, then, back to sound. The wavelengths of sound must be much longer than those of light, because sound is diffracted by obstacles that stop light cold. (Of course, while a tree will not reflect ordinary sound waves, mountains will, thus producing echoes, and large rooms will reverberate as sound waves bounce off the walls.)

The exact wavelength of a particular sound wave can be obtained by dividing the velocity of sound by the frequency (that is, the number of times the sound-source vibrates per second).

As for the velocity of sound, even primitive people must have known that sound has some finite speed, because at quite moderate distances you can see a woodcutter swing his axe and hit the tree and then only after a moment or two hear the "thunk." Assuming that light travels at infinite velocity (compared with sound, it virtually does) all you would have to do would be to measure the time interval between seeing and hearing over a known distance to determine the velocity of sound.

The difficulty of timing that interval was too much for scholars until modern times. It wasn't until 1656 that the pendulum clock was invented (by Huyghens, by the way, who originated the wave theory of light), and only then did it become possible to measure intervals of less than an hour with reasonable precision.

In 1738, French scientists set up cannons on hills some 17

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miles apart. They fired a cannon on one hill and timed the interval between flash and sound on the other; then fired the cannon on the second hill and timed the interval on the first. (Doing it both ways and taking the average cancels the effect of the wind.) Thus, the velocity of sound was first measured. The value accepted today is 331 meters per second at 0° C., or 740 miles an hour.

The velocity of sound depends on the elasticity of air; that is, on the natural speed with which air molecules can bounce back and forth. The elasticity increases with temperature and so, therefore, does the velocity of sound; the increase coming to roughly half a meter per second for each Centigrade degree rise in temperature.

Middle C on the piano has a frequency of 264 vibrations per second; therefore its wavelength is 331/264, or 1.25 meters. Frequency goes up with higher pitch (as the Pythagoreans first discovered) and wavelength therefore comes down. As pitch goes lower, frequency goes down and wavelength up.

The lowest note on the piano has a frequency of 27½ vibrations per second, while the highest note has a frequency of 4,224 vibrations per second. The wavelength of the former is therefore 331/27½, or 12 meters, and of the latter, 331/4224, or 0.076 meters (which is equivalent to 7.6 centimeters).

Even the wide range of the piano doesn't represent the extremes of the ear's versatility. The normal human ear can hear frequencies as low as 15 per second and as high as 15,000 per second in adults and even 20,000 per second in children. This is an extreme span of over ten octaves (each octave representing a doubling of frequency) as compared with the single octave of light to which the eye is sensitive. In terms of wavelength the human ear can make out a range, at the extreme, of from 22 meters down to less than 2 centimeters.

Even the highest-pitched sound we can hear, however, has a wavelength about 20,000 times as long as that of red light, so that we have every reason to expect that sound and light should behave quite differently with regard to obstructions.

Still, the shorter the wavelength (that is the higher-pitched the sound) the more efficiently a particular-sized obstacle ought to stop and reflect a sound-wave. A tree should be able to reflect a 2-centimeter sound-wave, where it would have no effect at all on a 22-meter sound-wave.

Why not, then, progress still further down the wavelength scale and use sounds so high-pitched that they pass the limits of audibility. (These are "ultrasonic"—

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"beyond sound" — frequencies.) The existence of such inaudible sound is easily demonstrated even without man-made detectors. Whistles can be made which yield ultrasonic sound when they are blown; we hear nothing, but dogs, with ears capable of detecting sound of higher frequency than ours can, and come running.

The production of ultrasonic sounds in quantity first became possible as a result of a discovery made in 1880 by two brothers, Pierre and Jacques Curie. (Pierre Curie, a brilliant scientist, happened to marry a still more brilliant one—Marie, the famous Madame Curie—and is the only great scientist in history who is consistently identified as "the husband of so-and-so.")

The Curie brothers found that quartz crystals, if cut in the proper manner, would, when slightly compressed as a result of very high pressure, developed small electric charges on the opposite faces. This is called "piezoelectricity," from a Greek word meaning "pressure." They also discovered the reverse phenomenon; that if a difference in voltage is set up in metal plates held against opposite faces of the crystal, a small compression is induced in the crystal. From this it follows, that if voltage is applied and removed rapidly, the crystal will expand and contract as rapidly, to produce a sound wave of that particular frequency. It will set up an ultrasonic beam, if the vibration is rapid enough.

After the radio tube was developed, voltages oscillating at ultrasonic frequencies became quite practical, and the French physicist, Paul Langevin, succeeded in producing strong ultrasonic beams in 1917. World War I was on and he at once attempted to put to use the fact that such short-wavelength sound could be more efficiently reflected by relatively small obstacles. He used them to detect submarines under water. From the time lapse between emission of the ultrasonic pulse and detection of the echo and from the velocity of sound in water (which is over four times as great as the velocity in air, because of water's greater elasticity) the distance of the obstruction can be determined.

After World War I, this principle was put to peace-time use in detecting schools of fish and hidden icebergs, in determining the depths of the ocean and the conformation of the sea-bottom, and so on. It went to war again in World War II, and received the name of "sonar," the abbreviation of "*so*und *n*avigation *a*nd *r*anging." (Sometimes I wonder if bright young men aren't spending too much time making up phrases that will yield snappy abbreviations. Myself, I am waiting for

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someone to found an "International Scientific Association for the Advancement of Cheesecake" because it seems so just that this be referred to only as "isaac".)

But it would seem that sonar is one field in which mankind has been anticipated by other species of creatures by many millions of years.

The bat, for instance, is a clever flyer, fluttering and flitting in an erratic course. (The original meaning of the word "bat" is, "to flutter rapidly," as when you "bat your eyes," and an alternative name for the creature is "flittermouse.") In its wobbly course, the bat catches tiny insects with precision and evades small obstructions like tree-twigs with ease. Considering that it flies at twilight, it is amazing that it can do so.

In 1793, the Italian scientist, Lazzaro Spallanzani, found that bats could catch food and avoid obstacles even in pitch darkness and even if blinded; however, they lost this ability if they were deafened.

In the early 1940's, an American physicist, G. W. Pierce, developed a device that could pick up particularly faint ultrasonic beams, and it then turned out that bats were constantly emitting not only the faint squeaks that human ears could pick up, but inaudible ultrasonic sounds with frequencies as high as 150,000 per second, and wavelengths, consequently, as low as 2 millimeters.

Such short wavelengths are stopped reasonably well by insects and twigs, which means they are reflected, and the bats pick up the echoes between squeaks and guide themselves accordingly.

And this is exactly what porpoises and dolphins do also, though they are detecting fish rather than insects. Their larger prey makes it unnecessary for them to drive frequency so high and wavelength so low. They do make use of sounds in the ultrasonic range, but accompanying these are sounds well into the audible range, usually described as "creaking."

Experiments at Woods Hole, Massachusetts, in 1955, showed that porpoises could pick up food-fragments as small as 15 centimeters (6 inches) even under conditions of complete darkness, provided they were creaking as they swam. If they were not creaking, they did not spot the fish. (One of the reasons the Navy is interested in these creatures, by the way, is that they hope to improve sonar technique by studying porpoise technique.)

This, then, is the non-communicative use of sound I referred to earlier in the article. We can speculate that perhaps the reason sea-life is so noisy is just because of the necessity of finding

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food and avoiding enemies in an environment where light is so limited and the sense of sight consequently so much less useful than it is on land.

But now let's ask a second question. Even if we grant that sound was first developed for purposes of sonar, a relatively simple scheme of sound-production should suffice (as in bats). When sound-production is as elaborate as it is in porpoises, isn't it conceivable that a secondary use involving the elaboration may have developed?

To feel our way toward an answer to that question, let's consider man and certain experiments at Cornell in the early 1940's, experiments which used both blind people and normally sighted people who had been blindfolded.

The subjects were asked to walk down a long hall toward a fiberboard screen which might be in any position along the hall or might not be there at all, and they were to stop as soon as they were convinced the screen was just before them.

They all did very well, spotting the screen almost every time some seven feet before they got to it. Most of the subjects were quite emphatic that they could somehow "feel" the approaching partition against their faces. And yet, when their heads were veiled with drapery that would absorb any waves in the air that might be applying pressure to delicate hairs on the face, their ability to sense the screen was not particularly impaired.

However, when the ears of the subjects were efficiently plugged, the ability was lost at once. Apparently, the small echoes of footsteps or of other incidental noises gave the barrier away and, without knowing it, the men, both blind and blindfolded, were making use of the echolocation principle.

The fact that human beings make use of sonar, and that this, perhaps, represents the original use of the sounds we make, has not prevented us from developing sound communication secondarily to the point where it is now the prime function of our vocal cords. It is not inconceivable, then, that porpoises, with as good a brain as our own and equally good ears and sound-making equipment (or perhaps better in each case), might not also have developed speech.

Frankly, I hope most earnestly that they have. There are a few problems mankind has, the solving of which I think might be greatly aided if we could only talk them over with some creatures who could approach matters with a fresh and objective viewpoint.

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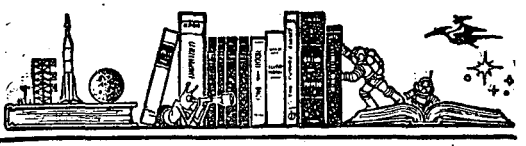
BOOKS



A CLASH OF CYMBALS, *James Blish, Faber & Faber, 13s 6d*
AGENT OF VEGA, *James A. Schmitz, Gnome Press, $3.00*
THE VORTEX BLASTER, *E. E. Smith, Ph. D. Gnome Press, $3.00*
THE WEANS, *Robert Nathan, Alfred A. Knopf, $1.50*
THE STATUS CIVILIZATION, *Robert Sheckley, Signet, 35¢*
VIKING EXPLORER BOOKS

IN A RECENT RADIO BROADCAST, James Blish stated that he believed it was the duty of the science fiction author to avoid building stories on scientific premises which were quite impossible, and to create concepts which might be of value to working scientists. It is this sincerity that has brought about his emergence as the conscience of the science fiction world in the past decade. Serious, sensitive, dedicated, Mr. Blish writes on an exalted intellectual level. In A CLASH OF CYMBALS he brings his famous "Oakie" series to an end with a sequence of fascinating para-physical theorems.

The "Oakies," still led by their indestructible Mayor John Amalfi, have finally settled down on the planet "New Earth." They are visited by the wandering planet "He" (which planet Amalfi started on its journey many decades ago) bringing startling news. In mid-space, "He" has observed the creation of matter and anti-matter, which data lead to an inescapable conclusion; the known universe is about to come to an end.

Mr. Blish's theorizing about the conclusion of space and time is original and arresting, and the steps his characters take to cope with this ending are equally remarkable. But unfortunately this department must continue an old debate with Mr. Blish; we feel he is too brilliant an intellect and too constrained a human being to do justice to the fiction half of science fiction. His characters lack emotion, conflict, reality; it is impossible to believe in them, feel for them, identify with them. He refuses to conceive of a story in terms of human values.

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We urge Mr. Blish, for the sake of his formidable talent, to abandon intellect and take to drink, drugs, seduction, crime, politics . . . anything that will shock him into experiencing the stresses that torture people, so that he will be able to write about them with the same lucid dedication which he presently reserves exclusively for science.

AGENT OF VEGA is a collection of four long stories by James A. Schmitz which appeared originally in the two eminent rivals of this magazine. They are bustling, sprinting space-opera in the best tradition, leavened with just enough characterization to make them enjoyable. Mr. Schmitz' canvas is the whole sprawling galaxy, his framework is the Department of Galactic Zones, his protagonists are the fabulous Zone Agents (extrapolated G-Men) who maintain order by hook or by crook, and always with superb effrontery.

As a matter of fact, most of the Zone Agents are G-Women: the beautiful Pagadan of Lannai, tough little Zamm of Daya-Bals, and Grandma Erisa Wannattel of Noorhut. But in his first story, "Agent of Vega," the author features Zone Agent Iliff, an irritable fighting cock of a man, in a novel and entertaining relationship with a new concept in science fiction, the living spaceship. If you missed these stories in magazine publication, now's your chance to catch up with them; but you'll never catch up with Mr. Schmitz' breakneck pace.

For years this department has wondered why the space-operas of E. E. Smith have never failed to enchant us, and we read his latest, THE VORTEX BLASTER, with great attention. It is a novel about Neal "Storm" Cloud, Doctor of Nucleonics, whose wife and children have been killed by "a loose atomic vortex," which is a sort of miniature thermonuclear volcano. These vortices are apparently the accidental by-products of commercial atomic power plants and are popping up all over the galaxy.

Despairing and alone, Cloud takes a big risk, discovers how to extinguish these vortices, and is sent around the galaxy by the Lensmen on various missions. He is joined by a swashbuckling harem; they all talk Mr. Smith's delicious fabricated dialogue; them ole debbil dope fiends, the zwilniks, manufacture their evil plots; and it's "QX" here and "Clear Ether" there while the DeLameters chop and the solid dureum battle axes flame . . . or have we got it backwards?

But we did get one thing straight; we know now the secret of Mr. Smith's hypnotic effect on us. We found the clue in a passage describing the hero on his way to

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a posh reception: *Cloud was dressed . . . in sandals, breechclout, and DeLameter harness, the shoulder-strap of the last-named bearing the three silver bars of a commander of the Galactic Patrol. He was not muscled like a gladiator, but his bearing was springily erect, his belly hard and flat, his shoulders were wide, his hips were narrow, and his skin was tanned to a smooth and even richness of brown.*

"By God! It's none other than the legendary John Carter of Mars," we exclaimed, looking around for Thuvia, Maid of Mars, and good old Tars Tarkus. Mr. Smith never fails to transport us back into our childhood, and we're properly grateful.

THE WEANS, a charming pastiche by Robert Nathan, which originally appeared and was anthologized as "Digging the Weans," has been published in book form by Knopf, illustrated with drawings and photographs. It would be misleading to call it a story. Mr. Nathan has written a futuristic archaeological report on the lost civilization of the North American continent. With a straight face, the author discusses finds unearthed at diggings in n. Yok, Bosstin, Oleens, and Pound-Laundry (which you'll figure out after a moment's thought).

The idea isn't particularly new, but it's an attractively designed book. However, this department, already a fan of the contrary Obelgerst-Levy, and the gentle Sra. Bess Nebby (archaeologists of the future who figure prominently in the scholarly footnotes), was disappointed to see them literally presented in photographs. Sometimes it's far wiser to leave matters to the reader's imagination.

Gloom has settled upon us. After the glowing notice we gave Robert Sheckley's collection of short stories last month, we are now forced to report that his novel, THE STATUS CIVILIZATION, controverts everything we said about his sparkling craftsmanship. This is a "What would happen if—" novel. "What would happen if—" is a mechanical development of a story out of deliberately reversed values, usually only practised by second-rate writers. What would happen if men gave birth to children instead of women? What would happen if people grew younger instead of older? What would happen if—? You name it.

Mr. Sheckley's reversal is the planet Omega which is one vast criminal colony where lawlessness is legal and required, and virtue is illegal and despicable. His protagonist, Will Barrent, rises rapidly in this upside-down society through accidental crimes and outlaw adventures, meanwhile preserving a tatty sort of innocence. The book is hastily and maladroit-

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ly written, and bears no relationship whatever to the interesting title and blurb on the cover. For shame, Mr. Sheckley; you can do much, much better.

The slogan of Viking Explorer Books, printed inside the front cover, is: *Reprints of the best and most popular books in the field of science, in handsome, inexpensive format.* The publishers have kept their word. The books are priced anywhere from 95¢ to $1.45, are handsomely printed and illustrated, with well-designed covers, and bridge a broad spectrum of interest.

Viz: ON THE VARIOUS FORCES OF NATURE, Michael Faraday's wonderful lectures on science for young people. ANDREE'S STORY, the complete record of Andree's polar balloon flight in 1897, plus the exciting photographs so miraculously recovered from the remains of his camp in 1930. THE DESERT YEAR, Joseph Wood Krutch's elegant essays on the natural history of the American Southwest. FOUR WAYS OF BEING HUMAN, Gene Lisitzky's penetrating analysis of life among the Jungle Semang, the Polar Eskimos, the Pacific Maoris, and the Desert Hopis. THE WORLD OF NIGHT, by Lorus and Margery Milne. ELEPHANT BILL, by J. H. Williams. There are a dozen more, all worthwhile.

Ace Books has reprinted THE BEST FROM FANTASY AND SCIENCE FICTION (Fourth Series) edited by Anthony Boucher. We're very sorry to continue our old quarrel with this publishing house, but this, too, is a most miserably put-together volume in terms of cover, layout, and paper. It's almost as though Ace just doesn't give a damn. The authors, however, are superb: Matheson, Davidson, Bradbury, Sheckley, Abernathy & Kornbluth. It reads like a litany, doesn't it; or the greatest advertising agency in the world.

—ALFRED BESTER

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It had to be a gag, because nobody has a name like Boris Swearoff. And a werewolf too? Like man that's too much!

THE BEATNIK WEREWOLF

by Dan Lindsay

IT WAS DRIZZLING, AS USUAL, and I turned my coat collar up as I stood there under the street light. California, the land of sunshine! For the tenth time I pulled out the note and re-read it.

Dear Sir Lane:

Would you be interested in helping a fellow creature with a big problem? It won't cost you any money. I have read your stories in the trade magazines for years and you seem to be the one to help me. Please come to Marie's at eight o'clock on Tuesday evening. Take the back booth. I will make myself known.

Boris Swearoff

Across the street was Marie's. It was Tuesday and ten minutes until eight. I stood there, feeling like a prize patsy, wondering which one of my drunken friends had framed such an elaborate gag. It had to be a gag because nobody has a name like Boris Swearoff, and I don't write for the trade magazines—I write science fiction and fantasy. Ah, well, I told myself, maybe this screwball business would take my mind off my troubles for a while—Elaine, my regular playmate, had given me the boot a few weeks ago and I'd been feeling low ever since.

I crossed the street and pushed open the door. The smoke-filled cave was packed with a real weird group. Either a masquerade party, I decided, or a beatnik hang-out. I stood there at the door, waiting for my eyes to adjust. The poorly lit street seemed like high noon compared to this. There were a few lights on the back bar, for the rest it was strictly stub candles in wax-coated beer bottles. I headed for the back booth feeling foolish and out of place.

A lean, bearded character, with a lupine face was already sitting there. I hesitated, then started to turn away.

"Like man are you Lane?" A

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slightly gutteral voice stopped me in mid-stride. It was the lupine appearing gentleman in the booth.

"I am . . ."

"Then drape the frame. I am Swearoff."

I sat, feeling more foolish by the second. He smiled and I felt the hair on the back of my neck stiffen. If ever I saw a "Ho Ho Ho, now I have you in my power" leer, this was it.

"You . . . uh . . . mentioned something about reading my stories in the trade magazines. You must have the wrong Lane. I write fantasy and science fiction."

He gave me a steady stare and shook his head. "Man it's you I want."

"I just never thought of them as trade magazines."

"Like man you would if you were a werewolf. Say, would you like a drink?"

"Double Bourbon . . . water back."

I watched him go to the bar. The bartender knew him and that made me feel better. I have a deep faith in the basic humanity of bartenders; if he was known by the bartender, then I wasn't going to be eaten after all. I relaxed a little and stared at the group around me. If beatnik means mangy, then they were beatnik. Most of them could have used a shave, a haircut, a toothbrush, and most of all, a bath. I had just re-convinced myself that it was all a big gag when he came back. Werewolf, did he say?

"My problem is simple." He slid me my bourbon and sat down. "I'm making it with this chick, see? She wouldn't dig this werewolf bit, at all. Man she'd blow! After two hundred years I'm beat. I want to retire like anybody else . . . maybe have cubs . . . *you* know. It's square, but I'm playing it by ear."

I didn't say anything. I couldn't. It was his turn to be embarrassed. He took a sip of his beer, wiped his beard, and stared down at the table top.

"Like man I've lost my taste for blood."

"Why bring this real simple problem of yours to me?" I knew I was going to wake up in my own cozy bed in a minute anyway, so I went along.

"It's your fault I'm here. All the conversation about California and open collars—makes it easier for a werewolf to get to the jugular. I was happy in Europe, but I kept thinking about that rich American blood and the crazy spread of national flavors. It got to me, and now this chick has ruined me. Like you're a big man on Lycanthropy so I make it you can help."

"Look, Swearoff, or whatever the hell your real name is, I'm going. I'm getting up and walking out. I can go along with a gag as well as the next guy—but a beatnik werewolf?"

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"Look man this is no caper. I got two real problems here. This chick has got me way out. I'm tired of this werewolf racket. I'm really beat. It's too much but I want to be a real square john."

I got up shaking my head. I wasn't going to wait for my drunken friends to come howling through the door.

"Look man—" his dog-like eyes pleaded with me—"I don't like to metamorphose in a public place, but I will, a little. Sit back and watch my hands."

I don't know why, but I did. His hands were just hands. Lean, like the rest of him, but just hands. I was ready to laugh when they started trembling. Then the fingers started shortening. The nails were growing longer. Thick black hair started coming out. I stared down at my empty glass. What had he put in my drink? I batted my eyes, and looked at his hands again. They weren't hands at all. They were paws, powerful hairy wolf paws!

"Convinced?" Sweat was pouring from his face as he stared at me. I shook my head. I still couldn't believe my eyes.

"Then look at my ears."

Like the hands, before. His ears were just ears. Gradually they cupped, started growing longer.

"Man, this hurts." He was trembling violently now. "Do I have to grow my tail before you'll believe me?"

"I believe! Turn it off!" I was ready to scream.

Suddenly he let his breath out in one loud swoosh. The ears became just ears and the hands went back to just hands. He pulled out a handkerchief and mopped the sweat off his face.

"It's holding back that's hard," he explained. "A complete metamorphosis comes natural. It took me a hundred and fifty years to learn control."

For a while I didn't say anything. He seemed to understand. At least he got me another double bourbon and waited while I drank it. It might as well have been water.

"Gets you the first time you see it, doesn't it?" His smile was wry and bitter.

I nodded my head and looked away. "What do you expect from me?"

"I want to shake the habit." He watched me out of eyes that suddenly looked two hundred years old. "Just a hint of this werewolf bit and this chick would shove, man . . . but fast. I couldn't take that. In two hundred years it never happened before. She's a real kick."

"I know. My girl wanted an older man. I wish I knew what to tell you, but I don't. Why don't you talk to a priest?"

He shook his head. "Would you go to *your* bogeyman for help? Besides, it isn't my soul. A werewolf

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is a physical thing. You saw. Waving a cross around just bugs us because of the commotion. I've had crosses waved at me since I was fifteen years old—the only nervous-making ones are those big enough to use as a weapon. It doesn't take a silver bullet to jar me, and I can't vanish in a puff of smoke. That's for squares."

"What do the other werewolves say?"

"I've never known another werewolf. My mother and father were as far in as yours are. It's a lonesome kick, and that's why this chick hits me so hard—I'm not lonely with her. Like it really sends me after two hundred years of being alone."

"Two weeks is bad enough, but can't you just control yourself? Sort of . . . er . . . switch to food?"

"I did that a long time ago. Vitamins help. It's my genes I'm worried about, man. What would it do to my chick if we came up with a wolf pack? See what I mean? Too much!"

"You can't!" The answer was suddenly so clear to me that I wondered why I hadn't seen it before. "You have no problem. Just take the chick and your vitamins and forget about the rest."

Swearoff stiffened in his seat. "Keep talking, man."

"According to you, werewolves are a biological sport, not hybrids, not a race of creatures. Biological sports can't breed true to their sportdom. If you can reproduce yourself at all—the offspring will be completely human. The big danger is that you won't be able to reproduce at all."

"Uh . . ." He looked off across the room. A deep red blush flooded his bearded face. "No sweat, there. That was my other problem."

"Oh . . ." I shoved my cigarets in my pocket and stood up.

"Thanks . . ." Swearoff's eyes were so grateful it hurt me to look. "If there is ever anybody you want . . . damn! I've got to quit that! Anyway, thanks!"

I looked back over my shoulder as I got to the door. He was shoveling a large handful of vitamins into his mouth. The door exploded against the side of my face. I shook my head to clear away the bells. There stood Elaine.

"Babydoll! How I've missed you." I reached for her.

"Oh, hello, Harry . . ." She backed away, anxiously looking around the room. "Nice to see you."

"Look, let's get a drink and talk this thing out."

"Harry, it's over. I'm going to get married to the sweetest guy in the world. . . . Oh, there he is!"

I closed my eyes, afraid to look as she rushed past me.

Yep, Boris. Regular wolves maybe I can compete with, but not werewolves! I stumbled out into the night.

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to look around. Hawks stopped with him.

All the work lights were on. Barker turned his body slowly from the hips, studying the galleries of signal-modulating equipment, and watching the staff assistants running off component checks.

"Busy," he said, looking at the white-coated men, who were consulting check-off sheets on their clipboards, setting switches, cutting in signal generators from the service racks above each gallery, switching off, re-setting, re-testing. His glance fell on the nearest of a linked array of differential amplifier racks on the laboratory floor. "Lots of wiring. I like that. Marvels of science. That sort of thing."

"It's part of a man."

"Oh?" Barker lifted one eyebrow. His eyes were dancing mockingly. "Plugs and wires and little ceramic widgets," he challenged.

Hawks said: "That entire bank of amplifiers is set up to contain an exact electronic description of a man. His physical structure, down to the last moving particle of the last atom in the last molecule in the last cell at the end of his little toe's nail. It knows, thereby, a good deal more than we can learn —his nervous reaction time and volume, the range and nature of his reflexes, the electrical capacity of each cell in his brain. It knows everything it needs to know so it can tell another machine how to build that man.

"It happens to be a man named Sam Latourette, but it could be anyone. It's our standard man. When the matter transmitter's scanner converts you into a series of similar electron flows, the information goes on a tape, to be filed. It also goes in here, so we can read out the differences between you and the standard. That gives us a cross-check when we need accurate signal definition. That's what we're going to do today. Take our initial scan, so we can have a control tape and a differential reading to use when we transmit tomorrow."

Barker smiled. "Ain't science great?"

Hawks looked at him woodenly. "We're not conducting any manhood contests here, Barker. We're working at a job. It's not necessary to keep your guard up."

"Would you know a contest if you saw one, Doctor?"

Sam Latourette, who had come up behind Barker, growled: "Shut up, Barker!"

Barker turned casually. "Jesus, fellow, I didn't eat your baby."

"It's all right, Sam," Hawks said patiently. "Al Barker, this is Sam Latourette. Doctor Samuel Latourette."

"I've been looking over the file Personnel sent down on you, Bar-

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ker," Latourette said. "I wanted to see what your chances were of being any use to us here. And I just want you to remember one thing." Latourette had lowered his head until his neck was almost buried between his massive shoulders, and his face was broadened by parallel rows of yellowish flesh that sprang into thick furrows down the sides of his jaw. "When you talk to Doctor Hawks, you're talking to the only man in the world who could have built this." His pawing gesture took in the galleries, the catwalks, the amplifier bank, the transmitter hulking at the far wall. "You're talking to a man who's as far removed from muddleheadedness—from what you and I think of as normal human error—as you are from a chimp. You're not fit to judge his work, or make smart cracks about it. Your little personality twists aren't fit for his concern. You've been hired to do a job here, just like the rest of us. If you can't do it without making more trouble for him than you're worth, get out—don't add to his burden. He's got enough on his mind already." Latourette flashed a deep-eyed look at Hawks. "More than enough." His forearms dangled loosely and warily. "Got it straight, now?"

Barker's expression was attentive and dispassionate as he looked at Latourette. His weight had shifted almost entirely away from his artificial leg, but there was no other sign of tension in him. He was deathly calm.

"Sam," Hawks said, "I want you to supervise the tests on the lab receiver. It needs doing now. Then I need a check on the telemeter data from the relay tower and the Moon receiver. Let me know as soon as you've done that."

Barker watched Latourette turn and stride soundlessly away down along the amplifier banks toward the receiving stage, where a group of technicians was fluoroscoping a series of test objects being transmitted to it by another team.

"Come with me, please," Hawks said to Barker and walked slowly toward the table where the suit lay.

"So they talk about you like that around here," Barker said, still turning his head from side to side as they walked. "No wonder you get impatient when you're outside dealing with the big world."

"Barker, it's important that you concern yourself only with what you're here to do. It's removed from all human experience, and if we're all to go through it successfully, we must try to keep personalities out of it."

"How about your boy, over there? Latourette?"

"Sam's a very good man," Hawks said slowly.

"And that's his excuse."

"It's his reason for being here. Ordinarily, he'd be in a sanatorium under sedation for his pain. He has an inoperable can-

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cer. He will be dead next year."

They had passed the low wall of linked gray steel cabinets. Barker's head jerked back around. "Oh," he said. "That's why he's the standard man in there. Nothing eating at the flesh. Eternal life."

"No usual man wants to die," Hawks said, touching Barker's shoulder and moving him gently toward the suit. The men of the Navy crew were darting covert glances at Barker only after looking around to see if any of their team mates were watching them at that particular instant. "Otherwise, the world would be swept by suicides."

Hawks pointed to the suit. "Now, this is the best we can do for you in the way of protection. You get into it here, on the table, and you'll be wheeled into the transmitter. You'll be beamed up to the Moon receiver in it—once there, you'll find it comfortable and easily maneuverable. You have power assists activated by the various pressures your body puts on them. The suit will comply to all your movements. I'm told it feels like swimming. You have a selection of all the tools we know you'll need, and a number of others we think might be called for. That's something you'll have to tell us afterward, if you can. Now I'd like you to get into it, so the ensign and his men, here, can check you."

The naval officer in charge of the specialist crew stepped forward. "Excuse me, Doctor," he said. "I understand the volunteer has an artificial limb." He turned to Barker. "If you'll please remove your trousers, sir?"

Hawks smiled uncomfortably. "I'll hold your jacket," he said to Barker.

Barker looked around. Beads of cold moisture appeared on his forehead. His eyes were suddenly much whiter than the flesh around them. He handed the windbreaker to Hawks without turning his face toward him. He opened his belt and stepped out of the slacks. He stood with them clutched in his hands, looked at Hawks, then rolled them up quickly and put them down on the edge of the table.

"Now, if you'll just lie down in the suit, sir, we'll see what needs adjusting." The ensign gestured to his team, and they closed in around Barker, lifting him up and putting him down on his back inside the opened suit. Barker lay rigid, staring up, and the ensign said: "Move yourself around, please—we want to make sure your muscles make firm contacts with all the servomotor pressure plates."

Barker began stiffly moving his body.

The ensign said: "Yes, I thought so. The artificial limb will have to be built up in the region

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of the calf, and on the knee joint. Fidanzato—" He gestured to one of his men. "Measure those clearances and then get down to the machine shop. I want some shim plates on there. I'm sorry sir," he said to Barker, "but you'll have to let my man take the leg with him. It won't take long. You can just lie there comfortably meanwhile. Sampson—help this man off with his shirt so you can get at the shoulder strap."

Barker jerked his arms up out of the suit, grasped the edges of the torso backplate, and pulled himself up to a sitting position. "I'll take my own shirt off, Sonny." His eyes were whiter.

A flash of pain crossed Hawks' face as he looked at him.

Fidanzato walked away with Barker's leg. Hawks said: "Excuse me," quickly, and crossed the laboratory floor to where Sam Latourette was working. "Sam. How's it going?" he asked gently.

"Fine," Latourette said over his shoulder. "Just fine."

Hawks caught his lower lip between his teeth. "Sam, you know, he's putting a lot into this, too. It may not look like it to most people, but he's a complicated—"

"Everybody's complicated. I'm complicated. You're complicated. Everybody bleeds inside for some reason. What counts is the reason. I don't think his is any good at all. He's wild and unpredictable." Latourette pawed clumsily at the air, red-faced. "Ed, you can't *use* Barker! You can't afford it. It won't work—it'll be too much! My God, you've known him one day and you're already involved with him!"

Hawks stood still, his eyes shut. "Don't you think he'll work out, Sam?"

"Listen, if he has to be put up with day after day, it'll get worse all the time!"

"So you do think he'll work out." Hawks opened his eyes at Latourette. "You're afraid he'll work out."

Latourette looked frightened. "Ed, he doesn't have sense enough not to poke at every sore spot he finds in you. It'll get worse, and worse, and the longer he lasts, the worse it'll be!"

"But what has it got to do with the work?" After a moment, he sent Latourette back to the transmitter, and walked across the laboratory toward Barker.

When Barker's leg came back, Hawks stood watching it being refitted. Bulges of freshly ground aluminum were bolted to the flesh-colored material. Then he was put in with the first of his undersuits.

Barker sat on the edge of the dressing table, smoothing the porous silk over his skin, with talcum powder showing white at his wristlets and around the turtle neck. The undersuit was bright orange.

"I look like a circus acrobat."

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Hawks looked at his wristwatch. "We'll be ready to scan in about twenty minutes. I want to be with the transmitter crew in five. Pay attention to what I'm going to tell you."

"Is there more?"

"There are details. I've told you all there is to the program. You're an intelligent human being and perhaps you'll be able to think out the details for yourself. Some or all of them," Hawks said. "Nevertheless," he went on after a moment, "I want to remind you. This is the first scan. We have no control tape on you—that's why we're taking this scan now. So the fidelity of the transmission depends entirely on how good our basic hardware is—on how little static is permitted to appear as noise in the speaker cone, if you want a simple analogy. Even after we have a file tape, we have to introduce a statistical correction in each transmission, to account for the time lapse between the making of the tape and the time of the transmission.

"But this first time, you're trusting entirely to our skill as engineers. There won't be any gross errors. But there may be errors our equipment is too crude to correct or control—naturally, we can't know that.

"You have to realize—we don't know *why* the scanner works. We have no theory in this field. We only know how it works, and that may not be enough.

"Once the scan is in progress, we can't correct any errors. The equipment is in motion, and we can only make sure it keeps moving. We're blind. We don't know which bit of the signal describes which bit of the man, any more than Thomas Edison knew which bit of scratch on his first recording cylinder contained which precise bit of "Mary Had A Little Lamb." We may never know."

Barker said patiently: "Would you please make your point, Doctor? I know this is a crash program, and we're all in a hurry."

"A man is a phoenix, Barker," Hawks persisted. "He has to be reborn from his own ashes, for there isn't another being like him in the Universe. If the wind stirs the ashes into a parody, there is nothing we can do about it."

Barker said: "So what does it all add up to—am I taking a chance on coming out so hashed-up I'd be a monster who needed killing?"

Hawks shook his head quickly. "Oh, no, no—I told you; there won't be any gross errors. This is a simple business—transmitting along a cable to the receiver here. You may not be able to remember whether your first schoolbooks were covered in red or blue. Or you may remember incorrectly. And who could check it?"

"And that's all? For Pete's sake, Doctor, so what?"

Hawks shrugged uncomfortably. "I don't know. I suppose it

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all depends on how much of yourself you feel can be lost without your dying as an individual. But, remember—the equipment doesn't know, or care, and we at least don't know."

Barker smiled up viciously. "Just so long as you care, Doctor."

Hawks came up to the transmitter, where Sam Latourette was waiting for him.

"All set, Ed," Latourette said. "Anytime," he said with a bitter look toward Barker.

Hawks took a deep breath. "Sam, I want to talk to you for a minute." He walked toward a quiet corner of the laboratory, and Latourette followed.

"What's the trouble, Ed?"

"Sam, do you want me to put Ted Gersten in charge of the project right now?"

Latourette turned pale. "Why? What for? Don't you think I can handle it?" He blushed suddenly. In an embarrassed mumble, he said: "Look, it bothers me, but not that much. I've got a few more months left before I have to . . . you know, go to the hospital. I mean, sure, I have to take a lot of aspirin these days, but it's not *bad.*"

Hawks grimaced. "Sam, I need him more than I do you." He turned away suddenly, and stared at the wall. "Either leave him and me alone, or I've got to take you off this project. All it would take would be one slip—one dial setting wrong, one calculation off by a decimal place, and I wouldn't have him any longer. Do you understand what I'm saying, Sam? Unless you can put yourself in a state of mind where you won't be liable to make that mistake—unless you can calm down, and leave us alone—I can't risk it. All right, Sam? Do you understand?"

"Ed . . . God damn it, Ed . . ."

Hawks turned around. "Let's get things rolling, Sam." He walked toward the transmitter. He looked more like a scarecrow than ever.

"We're going to wheel you in now, Barker," Hawks said into his chest microphone."

"Roger, Doctor," came from the p.a. speaker mounted over the transmitter's portal.

"When you're in, we'll switch on the chamber electromagnets. You'll be held in mid-air, and we'll pull the table out. You won't be able to move, and don't try—you'll burn out the suit motors. You'll feel yourself jump a few inches into the air, and your suit will spread-eagle rigidly. That's the magnetic field. You'll feel another jolt when we close the chamber door and the fore-and-aft magnets take hold."

"I read you loud and clear."

"We're simulating conditions for a Moon shot. I want you to be

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familiar with them. So we'll turn out the chamber lights. And there will be a trace component of formalin in your air, to deaden your olfactory receptors."

"Uh-huh."

"Next, we'll throw the scanning process into operation. There is a thirty second delay on that switch on the scanner; that same impulse will first activate certain automatic functions of the suit. We're doing our best to eliminate human error, as you can see."

"I dig."

"A general anesthetic will be introduced into your air circulation. It will dull your nervous system without quite making you lose consciousness. It will numb your skin temperature-and-pressure receptors entirely. It will cycle out after you resolve in the receiver. All traces of anesthesia will be gone five minutes after you resolve."

"Got you."

"All right. Finally I'm going to switch off my microphone. Unless there's an emergency, I won't switch it on again. And from this point on, the microphone switch controls the two servoactivated ear plugs in your helmet. You'll feel the plugs nudging your ears; I want you to move your head as much as necessary to allow them to seat firmly. They won't injure you, and they'll retract the instant I have any emergency instructions to give you, if any. Your microphone will remain on, and we'll be able to hear you if you need any help, but you won't be able to hear yourself.

"You'll find that with your senses deadened or shut off, you'll soon begin to doubt you're alive. You'll have no way of proving to yourself that you're exposed to any external stimuli. You will begin to wonder if you have a mind at all. If this condition were to persist long enough, you would go into an uncontrollable panic. The required length of time varies from person to person. If yours exceeds the few minutes you'll be in the suit today, that'll be long enough. If it's less, we'll hear you shouting, and I'll begin talking to you."

"That'll be a great comfort."

"It will."

"Anything else, Doctor?"

"No." He motioned to the Navy crew, and they began rolling the table into the chamber.

Hawks looked around. Latourette was at the transmitter control console. Then his glance swept undeviatingly over Weston, who was leaning back against an amplifier cabinet, his arms and ankles crossed, and over Holiday, the physician, standing tensely pot-bellied at the medical remote console.

The green bulb was still lighted over the transmitter portal, but the chamber door was dogged shut, trailing the cable that fed power to its share of the scanner compo-

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nents. The receiver chamber was sealed. The hiss of Barker's breath, calm but picking up speed, came from the speaker.

"Sam, give me test power," Hawks said. Latourette punched a console button, and Hawks glanced at the technicians clustered around the input of the amplifier bank. A fresh spool of tape lay in the output deck, its end threaded through the brake rollers and recording head to the empty takeup reel. Petwill, the engineer borrowed from Electronic Associates, nodded to Hawks.

"Sam, give me operating power," Hawks said. "Shoot." The lights over the transmitter and receiver portals leaped from the green bulbs into the red. Barker's breath sighed into near silence.

Hawks watched the clock mounted in the transmitter's face. Thirty seconds after he had called for power, the multi-channel tape began to whine through the recording head, its reels blurred and roaring. A brown disk began to grow around the takeup spindle with fascinating speed. The green bulb over the receiver portal burst into life. The green bulb came back on over the transmitter.

The brakes locked on the tape deck. The takeup reel was three-quarters filled. Barker's shallow breath came through the speaker.

Hawks said, "Doctor Holiday, anytime you're ready to ease up on the anesthesia. . . ."

Holiday nodded. He cranked the reduction-geared control wheel remote-linked to the tank of anesthetic gas in Barker's armor.

Barker's breathing grew stronger. It was still edging up toward panic, but he had not yet begun to mumble into his microphone.

"How does it sound to you, Weston?" Hawks asked.

The psychologist listed reflectively. "He's doing pretty well. And it sounds like panic breathing; no pain."

Hawks shifted his glance. "What about that, Doctor Holiday?"

The little man nodded. "Let's hear how he does with a little less gas." He put his hands back on the controls.

Hawks thumbed his microphone switch. "Barker," he said gently.

The breathing in the speaker became stronger and calmer.

"Barker."

"Yes, Doctor," Barker's irritated voice said. "What's your trouble?"

"Doctor Hawks," Holiday said from the console, "he's down to zero anesthesia now."

Hawks nodded. "Barker, you're in the receiver. You'll be fully conscious almost immediately. Do you feel any pain?"

"No!" Barker snapped. "Are you all through playing games?"

"I'm turning the receiver chamber lights on now. Can you see them?"

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"Yes!"

"Can you feel all of your body?"

"Fine, Doctor. Can you feel all of yours?"

"All right, Barker. We're going to take you out, now."

The Navy crew began pushing the table toward the receiver as Latourette cut the fore-and-aft magnets and technicians began undogging the chamber door. Weston and Holiday moved forward to begin examining Barker as soon as he was free of the suit.

Hawks walked to the control console. "All right, Sam," he said as he saw the table slip under Barker's armor. "You can slack down on the primary magnets."

"You figure he's all right?" Latourette asked in a neutral voice.

"I'll let Weston and Holiday tell me about that. He certainly sounded as if he's as functional as ever." He essayed a little chuckle.

"Okay," Latourette said.

Hawks began again, gently: "Come on, Sam—let's go for a walk. We'll have Weston's and Holiday's preliminary reports in a minute. The boys can start setting up for tomorrow's shot."

"I'll start setting up for tomorrow's shot," Latourette growled.

Hawks sighed. "All right, Sam," he said and walked away.

CHAPTER FOUR

Hawks sat with his back pressed into the angle of the couch in Elizabeth Cummings' studio. He held his brandy glass cupped loosely in his hands, and watched the night sky through the frames of glass behind her. She was curled in the window seat, her profile to him, her arms clasped around her drawn-up knees.

"My first week in high school," he said to her, "I had to make a choice. Did you go to grammar school here in the city?"

"Yes."

"I went to school in a very small town. The school was fairly well equipped—there were four rooms for less than seventy pupils. But there were only three teachers, including the principal, and each of them taught three grades, including pre-primary. It meant that two thirds of each day, my teachers were unavailable to me. When I went to high school, I suddenly found myself with a teacher for *each subject.*

"Toward the end of the first week, the high school principal and I happened to meet in the hall. She'd read my intelligence test results and things, and she asked me how I liked high school. I told her I was having a wonderful time."

Hawks smiled down at his brandy glass. "She drew herself up, and her face turned to stone. 'You're not here to have fun!' she said, and marched away.

"So I had a choice. I could either find my school work a punish-

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ment, after that, and find ways to evade it, or I could pretend I felt that way about it, and use the advantages that pretense gives. I had a choice between honesty and dishonesty. I chose dishonesty. I became very grim, and marched to classes carrying a briefcase full of books and papers. I asked serious questions and mulled over my homework even in the subjects that bored me. I became an honor student. In a very little while, it *was* a punishment. But I had done it to myself, and I took the consequences of my dishonesty."

He looked around. "This is a very nice studio you have here, Elizabeth. I'm glad I was able to see it. I wanted to see where you worked—what you did."

"Please go on telling me about yourself," she said from the window.

"Well, you see," he said after a while in which he simply sat and looked at her, smiling, "that tells a great deal about me. I'd been made to realize so many things in one blow. I was never the same after that. I was—well, I was on my way here." He smiled uncomfortably.

"It happens to a lot of us—I mean, to a lot of us youngsters who aren't constituted to see learning as work, or even as a luxury. Some of us react one way, some of us another, on that day when we suddenly see into the hearts of our fellow men. I did what a lot of us do—I shut myself up, and kept out of the world's way. It seemed to me that science; a place where I could deal with known quantities, or at least with a firm discipline, away from people who might be concealing *anything* within them—it seemed to me, as I say, that science was the best place for me.

"And now I have work that has to be done by me, because I made it. I can't go back now and change the boy I grew out of, nor do I want to. How can I deny what I am? I have to work with what I am. A lump of carbon can't rearrange its own structure. It's either a diamond or a lump of coal—it doesn't even know what coal or diamonds are. Someone else has to judge it."

They sat for a long time without speaking, Hawks with the empty brandy glass set on the coffee table beside his out-thrust legs, Elizabeth watching him from against her drawn-up knees. "What are you thinking of now?" she asked when he stirred again and looked at his wristwatch. "Your work?"

"Now?" He smiled from a great distance. "No—I was thinking about something else. I was thinking about how x-ray photographs are taken."

"What about it!"

He shook his head. "It's complicated. When a physician X-rays a sick man, he gets a print showing

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the spots on his lungs, or the calcium in his arteries, or the tumor in his brain. But to cure the man, he can't take scissors and cut the blotch out of the print. He has to take his scalpel to the man, and before he can do that, he has to decide whether his knife could reach the disease without cutting through some part of the man that can't be cut. He has to decide whether his knife is sharp enough to dissect the malignancy out of the healthy tissue—or whether the man will simply re-grow his illness from the scraps left behind—whether he will have to be whittled at again and again. Whittling the X-ray print does nothing. It only leaves a hole in the celluloid.

"And even if there were some way to arrange the X-ray camera so that it would not photograph the malignancy, and if there were some way of bringing an X-ray print to life, the living print would only have a hole in it through to where the malignancy had been, just as if the surgeon had attacked it that way with his scalpel. It would die of the wound. So what you would need is an X-ray film whose chemicals will not only not reproduce malignancy but would reproduce healthy tissue which they have never seen. You would need a camera that could re-arrange the grains of silver on the film. And who can build such a camera?

"How am I to do that, Elizabeth? How am I to build that sort of machine?"

She touched his hand at the door, and his fingers quivered sharply. "Please call me again as soon as you can," she said.

"I don't know when that will be," he answered. "This—this project I'm on is going to take up a lot of time, if it works out."

"Call me when you can. If I'm not here, I'll be home."

"I'll call." He whispered: "Good night, Elizabeth." He was pressing his hand against the side of his leg. His arm began to tremble. He turned before she could touch him again and went quickly down the loft stairs to his car, the sound of his footsteps echoing clumsily downward.

CHAPTER FIVE

Hawks was sitting in his office the next morning when Barker knocked on the door and came in. "The guard at the gate told me to see you here," he said. His eyes measured Hawks' face. "Decided to fire me or something?"

Hawks shook his head. He closed the topmost of the bundle of file folders on his desk and pointed toward the other chair. "Sit down, please. You have a great deal to think over before you go to the laboratory."

"Sure." Barker's expression had relaxed just enough to show

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that it had been touched by uncertainty. He walked over the uncarpeted floor with sharp scuffs of his jodhpur boot heels. "And by the way, good morning," Doctor," he said, sitting down and crossing his legs. The shim plate bulged starkly under the whipcord fabric stretched across his knee.

"Good morning," Hawks said shortly. He opened the file folder and took out a large folded square of paper. He spread it out on his desk facing Barker.

Without looking at it, Barker said: "Claire wants to know what's going on."

"Did you tell her?"

"Did the FBI reports call me a fool?"

"Not in ways that concern them."

"I hope that's your answer. I was only reporting a fact you might be interested in. It cost me my night's sleep."

"Can you put in five minutes' physical effort this afternoon?"

"I'd say so if I couldn't."

"All right, then. Five minutes is all the time you'll have." He touched the map. "This is a chart of the Moon formation. You'll find it marked to show previous deaths, and the safe path. Attached to it is the summary of actions that have proven safe, and actions that have proven fatal. I want you to memorize it. You'll have one with you when you go in, but there's no guarantee that having it won't prove fatal at some point we haven't yet foreseen.

"And I want you to remember something, Barker—you are going to die. There is no hope of your survival. You will feel yourself die. Your only hope is in the fact that actually it will be Barker M, on the Moon, who dies, and Barker L, down here in the receiver, whose physical being will be perfectly safe. Let us hope Barker L will be able to remember that." Hawks looked intently across the desk. "I'm speaking to both of you, now—to Barker M and Barker L, not to the Al Barker who will be destroyed in the scan. Remember what I'm telling you now. Because if you don't, this will be a useless death, and Al Barker—all of Al Barker; all the Al Barkers who have ever occupied this life which began with his conception—will have come to an end."

"Now, look," Barker said, slapping the folder shut, "according to this, if I make a wrong move, they'll find me with all my blood in a puddle outside my armor, and not a mark on me. If I make another move, I'll be paralyzed from the waist down, which means I have to crawl on my belly. But crawling on your belly somehow makes things happen so you get squashed up into your helmet. And it goes on in that cheerful vein all the way. If I don't watch my step as carefully as a tightrope

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walker, and if I don't move on time and in position, like a ballet dancer, I'll never even get as far as this chart reads."

"Even if you stood and did nothing," Hawks agreed, "the formation would kill you at the end of two hundred thirty two seconds. It will permit no man to live in it longer than some man has forced it to. The limit will go up as you progress. Why its nature is such that it yields to human endeavor, we don't know. It's entirely likely that this is only a coincidental side-effect of its true purpose—if it has one.

"Perhaps it's the alien equivalent of a discarded tomato can. Does a beetle know why it can enter the can only from one end as it lies across the trail to the beetle's burrow? Does the beetle understand why it is harder to climb to the left or right, inside the can, than it is to follow a straight line? Would the beetle be a fool to assume the human race put the can there to torment it—or an egomaniac to believe the can was manufactured only to mystify it? It would be best for the beetle to study the can in terms of the can's logic, to the limit of the beetle's ability. In that way, at least, the beetle can proceed intelligently. It may even grasp some hint of the can's maker. Any other approach is either folly or madness."

Barker looked up at Hawks impatiently. "Horse manure. Is the beetle happier? Does it get anything? Does it escape anything? Do other beetles understand what it's doing, and take up a collection to support it while it wastes time? A smart beetle walks around your tomato can, Doctor, and lives its life contented."

"Certainly," Hawks said. "Go ahead. Leave now."

"I wasn't talking about me! I was talking about you." He put the folder under one arm and stood with his hands in his pockets, his head to one side as he stared flatly up into Hawks' face. "Men, money, energy—all devoted to the emminent Doctor Hawks and his toys. Sounds to me like the other beetles *have* taken up a collection."

"Looking at it that way," Hawks said dispassionately, "does keep it simple. And it explains why I continue to send men into the formation. It satisfies my ego to see men die at my command. Now it's your turn. What's this—" he touched a lipstick smudge around a purple bruise on the side of Barker's neck—"a badge of courage? Whose heart will break if you are brought home on your shield today?"

Barker knocked his hand away. "A beetle's heart, Doctor." His strained face fell into a ghastly, reminiscent smile. "A beetle's cold, cold heart."

The Navy crew pushed Barker

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into the transmitter. The lateral magnets lifted him off the table, and it was pulled out from beneath him. The door was dogged shut, and the fore-and-aft magnets came on to hold him locked immobile for the scanner. Hawks nodded to Latourette, and Latourette punched the Standby button on his console.

Up on the roof, there was a radar dish focussed in approximate parallel with the transmitter antenna. Down in the laboratory, Ted Gersten pointed a finger at a technician. A radar beep travelled to the Moon and returned. The elapsed time and doppler progression were fed as data into a computer which set the precise holding time in the delay deck. The matter transmitter antenna fired a UHF pulse through the Moon relay tower into the receiver there, tripping its safety lock so that it would accept the M signal.

Latourette looked at his console, turned to Hawks and said: "Green board."

Hawks said: "Shoot."

The red light went on over the transmitter portal, and the new file tape began roaring into the takeup pulleys of the delay deck. One and a quarter seconds later, the leader of the tape began passing through the playback head feeding the L signal to the laboratory receiver. The first beat of the M signal had hit the Moon.

The end of the tape clattered into the takeup reel. The green light went on over the laboratory receiver's portal. Barker L's excited breathing came through the speaker, and he said: "I'm here, Doctor."

Hawks stood in the middle of the floor with his hands in his pockets, his head cocked to one side, his eyes vacant.

After a time, Barker L said peevishly in a voice distorted by his numb lips: "All right, all right, you Navy bastards, I'm *goin'* in!" He muttered: "Won't even talk to me, but they're sure as hell on waving me along."

"Shut up, Barker," Hawks muttered urgently to himself.

"Going in now, Doctor," Barker said clearly. His breathing cycle changed. Once or twice after that, he grunted, and once he made an unconscious, high, keening noise.

Latourette touched Hawks' arm and nodded toward the stopwatch in his hand. It showed two hundred forty seconds of elapsed time since Barker had gone into the formation. Hawks nodded a nearly imperceptible reply.

Barker screamed. Hawks' body jumped in reflex, and his flailing arm sent the watch cartwheeling out of Latourette's hand.

Holiday, at the medical console, brought his palm down flat. A hyposprayer fired adrenalin into Barker L's heart as the anesthesia cut off.

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"Get him out quickly!" Weston was shouting. "He's gone into panic."

"It's just that he's alone," Hawks said softly, as if the psychologist were standing where he could hear him.

Barker sat hunched on the edge of the table, the opened armor lying dismembered beside him, and wiped his gray face. Holiday was listening to his heartbeat with a stethoscope, looking aside periodically to take a new blood pressure reading as he squeezed the manometer bulb he kept in his hand. Barker sighed: "If there's any doubt, just ask me if I'm alive. If you get an answer, you'll know." He looked wearily over Holiday's shoulder as the physician ignored him, and said to Hawks: "Well?"

Hawks glanced aside at Weston, who nodded imperturbably. "He's made it, Doctor Hawks."

"Barker," Hawks said, "I'm—"

"Yeah, I know. You're happy everything worked out all right." He looked around. His eyes were darting jerkily from side to side. "Could some of you stare at me a little later, please?"

"Barker," Hawks said gently, "Do you really feel all right?"

Barker looked at him expressionlessly. "I got up there, and they wouldn't even talk to me. They just shoved me along and showed me how to get to the thing. Bastards."

"They have problems of their own," Hawks said.

"I'm sure they do. Anyway, I got into the thing all right, and I moved along O.K.—it's—" His face forgot its annoyance, and his expression now was one of closely remembered bafflement. "It's—a little like a dream, you know? Not a nightmare, now—it's not all full of screams and faces, or anything like that—but it's . . . well, *rules*, and the crazy logic; Alice in Wonderland with teeth." He gestured as though wiping his clumsy words from a blackboard. "I'll have to find ways of getting it into English, I guess. Shouldn't be too much trouble. Just give me time to settle down."

Hawks nodded. "Don't worry. We have a good deal of time, now."

Barker grinned up at him with a sudden flash of boyishness. "I got quite a distance beyond Rogan M's body, you know. You'll never believe what killed him. What finally got me was—was—was the—was—"

Barker's face began to flush crimson, and his eyes bulged whitely. His lips fluttered. "The —the—" He stared at Hawks. "I can't!" he cried out. "I can't —Hawks—" He struggled against Holiday and Weston's trying to hold his shoulders, and curled his hands rigidly on the edge of the table, his arms locked taut, quivering in spasms. "Hawks!" he

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shouted as though from behind a thick glass wall. "Hawks, it didn't care! I was *nothing* to it! I was—I was—" His mouth locked partly open and the tip of his tongue fluttered against the backs of his upper teeth. "N-n-n . . . No—N-*nothing!*" He searched Hawks' face, desperate. He breathed as though there could never be enough air for him.

Weston was grunting with the effort to force Barker over backward and make him lie down. Holiday was swearing as he precisely and steadily pushed the needle of a hypodermic through the diaphragm of an ampule he had plucked out of his bag.

Hawks clenched his fists at his sides. "Barker! What color was your first schoolbook?"

Barker's arms loosened slightly. His head lost its rigid forward thrust. He shook his head and scowled down at the floor, concentrating fiercely.

"I—I don't remember, Hawks," he stammered. "Green—no, no, it was orange, with blue printing, and it had a story in it about three goldfish who climbed out of their bowl onto a bookcase and then dived back into it. I—I can see the page with the illustration: three fish in the air, falling in a slanted tier, with the bowl waiting for them. The text was set with three one-word paragraphs: 'Splash!' and then a paragraph indentation, and then 'Splash!" and then once more. Three 'Splash!'s in a tier, just like the fish."

"Well, now, you see, Barker," Hawks said softly. "You have been alive for as long as you can remember. You *are* something. You've seen, and remembered."

Barker was slumped, now. Nearly doubled over, he swayed on the edge of the table, the color of his face gradually returning to normal. He whispered intently: "Thanks. Thanks, Hawks." Bitterly, he whispered: "Thanks for everything." He mumbled suddenly, his torso rigid: "Somebody get me a wastebasket, or something."

Latourette and Hawks stood beside the transmitter, watching Barker come unsteadily back from the washroom, dressed in his slacks and shirt.

"What do you think?" Latourette growled. "What's he going to do now? Is he going to pull out on us?"

"I don't know," Hawks answered absently, watching Barker. "I thought he'd work out," he said under his breath. "We'll simply have to wait and see. We'll have to think of a way to handle it."

He said as though attacked by flies: "I have to have time to think. Why does time run on while a man thinks?"

Barker came up to them. His eyes were sunken in their sockets.

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He looked piercingly at Hawks. His voice was jagged and nasal.

"Holiday says I'm generally all right, now, everything considered. But someone must drive me home." His mouth curled. "D'you want the job, Hawks?"

"Yes, I do." Hawks took off his smock and laid it folded down atop the cabinet. "You might as well set up for another shot tomorrow, Sam."

"Don't count on me for it!" Barker sawed.

"We can always cancel, you know." He said to Latourette: "I'll call early tomorrow and let you know."

Barker stumbled forward as Hawks fell into step beside him. They slowly crossed the laboratory floor and went out through the stairwell doors, side by side.

Connington was waiting for them in the upstairs hall, lounging in one of the bright orange plastic-upholstered armchairs that lined the foyer wall. His eyes flicked once over Barker, and once over Hawks. "Have some trouble?" he asked as they came abreast of him. "I hear you had some trouble down in the lab," he repeated, his eyes glinting.

"God damn you, Connington —" Barker began with the high, tearing note in his voice.

"So I was right." Connington grinned consciously. "Goin' back to Claire, now?" He blew out cigar smoke. "The two of you?"

"Something like that," Hawks said.

Connington scratched the lapel of his jacket. "Think I'll come along and watch." He smiled fondly at Barker, his head to one side. "Why not, Al? You might as well have the company of *all* the people that're trying to kill you."

Hawks looked at Barker. The man's hands fumbled as though dealing with something invisible in the air just in front of his stomach. He was staring right through Connington, and the personnel man squinted momentarily.

Then Barker said lamely: "There isn't room in the car."

Connington chuckled warmly and mellifluously. "I'll drive it, and you can sit on Hawks' lap. Just like Charlie McCarthy."

Hawks pulled his glance away from Barker's face and said sharply: "I'll drive it."

Connington chuckled again. "There's going to be a meeting of the Joint Chiefs at the Pentagon tomorrow. They got the report on Rogan, and a long memorandum from Cobey and the Con El legal department. There's going to be a decision made on whether to cancel the project contracts. I'll drive." He turned back toward the double plate-glass doors and began walking out. He looked back over his shoulder. "Come along, friends," he said.

Claire Pack stood watching

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them from the head of the steps up to the lawn. She was wearing a one-piece skirtless cotton swimsuit cut high at the tops of her thighs, and was resting her hands lightly on her hips. As Connington shut off the engine and the three of them got out of the car, she raised her eyebrows.

"Well, Doctor!" she said with low-voiced gravity and a pucker of her lips, "I'd been wondering when you'd drop by again."

Connington, coming around the other side of the car, smiled watchfully at her and said: "He had to chaperone Al home. Seems there was a little hitch in the proceedings today."

She glanced aside at Barker, who was closing the garage doors. She ran her tongue over the edges of her teeth. "What kind?"

"Now, I wouldn't know as to that. Why don't you ask Hawks?" Connington took a fresh cigar out of his case. "I like that suit, Claire," he said. He trotted quickly up the steps, brushing by her. "It's a hot day. Think I'll go find a pair of trunks and take a dip myself. You and the boys have a nice chat meanwhile." He walked quickly up the path to the house, stopped, lit the cigar, glanced sideward over his cupped hands, and stepped out of sight inside.

"I think Al will be all right," Hawks said.

Claire looked down at him. She focussed her expression into an open-faced innocence. "Oh? You mean, he'll be back to normal?"

Barker brought the garage doors down and passed Hawks with his head bent, striding intently as he thrust the ignition keys into his pocket. His face jerked up toward Claire as he climbed the steps. "I'm going upstairs. I may sack out. Don't wake me." He half-turned and looked at Hawks. "I guess you're stuck here, unless you want to take another hike. Did you think of that, Doctor?"

"Did you? I'll stay until you're up. I'll want to talk to you."

"I wish you joy of it, Doctor," Barker said, and walked away, with Claire watching him. Then she looked back down at Hawks. Through all this, she had not moved her feet or hands.

Hawks said: "Something happened. I don't know how much it means."

"You worry about it, Ed," she said, her lower lip glistening. "In the meantime, you're the only one left standing down there."

Hawks sighed. "I'll come up."

Claire Pack grinned.

"Come over and sit by the pool with me," she said when he reached the top of the steps. She turned away before he could answer, and walked slowly in front of him, her right arm hanging at her side. Her hand trailed back, and reached up to touch his own. She slackened her pace so that

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they were walking side by side, and looked up at him. "You don't mind, do you?" she said gently.

Hawks looked down at their hands for a moment, and as he did, she put the backs of her fingers inside his palm. She smiled and said: "There, now," in an almost childishly soft voice.

They walked to the edge of the pool and stood looking down into the water. Then her mouth parted in a low, whispered laugh. She swayed her upper body toward him, and put her other hand on his arm.

Hawks put his right hand around his own left wrist and held it, his arm crossed awkwardly in front of his body.

She looked down at his arm. "You know, if I get too close to you, you can always dive into the pool." Then she grinned to herself again, keeping her face toward him to let him see it, and, taking her hands away, sank down to lie on one hip in the grass. "I'm sorry," she said, looking up. "I said that just to see if you'd twitch. Connie's right about me, you know."

Hawks squatted angularly down next to her. "In what way?"

She put one hand down into the blue water and stirred it back and forth, silvery bubbles trailing out between her spread fingers. "I can't know a man more than a few minutes without trying to get under his skin," she said in a pondering voice. "I have to do it."

Hawks continued to look at her gravely, and she slowly lost the vivacity behind her expression. She rolled over suddenly on her back, her ankles crossed stiffly, and put her hands down flat on her thigh muscles.

"What's happening to Al?" she said, moving only her lips. "What are you doing to him?"

"I don't know, exactly," Hawks said. "I'm waiting to find out."

She sat up and twisted to face him, her breasts moving under the loose top. "Do you have any kind of a conscience?" she asked. "Is there anyone who can hurt you?"

He shook his head. "That kind of question doesn't apply. I do what I have to do."

She seemed to be almost hypnotized. She leaned closer.

"I want to see if Al's all right," Hawks said, getting up.

Claire arched her neck and stared up at him. "Hawks," she whispered.

"Excuse me, Claire." He stepped around her drawn-up legs and moved toward the house.

"Hawks," she said hoarsely. The top of the swimsuit was almost completely off the upper faces of her breasts. "You have to take me tonight."

He continued to walk away.

"Hawks—I'm warning you!"

Hawks flung open the house door and disappeared behind the sun-washed glass.

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"How'd it go?" Connington laughed from the shadows of the bar at the other end of the living room. He came forward, dressed in a pair of printed trunks, his stomach cinched by the tight waistband. He was carrying a folded beach shirt over his arm and holding a pewter pitcher and two glasses. "It's a little like a silent movie, from here," he said, nodding toward the glass wall facing out onto the lawn and the pool. "Hell for action, but short on dialogue."

Hawks turned and looked. Claire was still sitting up, staring intently at what must have been a barricade of flashing reflections of herself.

"Gets to a man, doesn't she?" Connington chuckled. "Forewarned is not forearmed, with her. She's an elemental—the rise of the tides, the coming of the seasons, an eclipse of the Sun." He looked down into the pitcher, where the ice at the top of the mixture had suddenly begun to tinkle. "Woe to us, Hawks. Woe to us who would pursue them on their cometary track."

"Where's Barker?"

Connington gestured with the pitcher. "Upstairs. Took a shower, threatened to disembowel me if I didn't get out of his way in the hall, went to bed. Set the alarm for eight o'clock. Put down a tumbler full of gin to help him. Where's Barker?" Connington repeated. "Dreamland, Hawks—whatever dreamland it was that awaited him."

Hawks looked at his wristwatch.

"Three hours, Hawks," Connington said. "Three hours, and there is no Master in this house." He moved around Hawks to the outside door. "Yoicks!" he yapped twistedly, raising the pitcher in Claire's direction. He pushed clumsily at the door with his shoulder, leaving a damp smear on the glass. "Tally ho!"

Hawks moved farther into the room, toward the bar. He searched behind it, and found a bottle of Scotch. When he looked up from putting ice and water into a glass, he saw that Connington had reached Claire and was standing over her. She lay on her stomach, facing the pool, her chin resting on her crossed forearms. Connington held the pitcher, saying something and pouring awkwardly into the two glasses in his other hand.

Hawks walked slowly to the leather-covered settee facing the windows, and sat down.

Claire rolled half-over and stretched up an arm to take the glass Connington handed down. She perfunctorily saluted Connington's glass and took a drink, her neck arching. Then she rolled back, resting her raised upper body on her elbows.

Connington sat down on the

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edge of the pool beside her, dropping his legs into the water. Claire reached over and wiped her arm. Connington raised his glass again, held it up in a toast, and waited for Claire to take another drink. With a twist of her shoulders, she did, pressing the flat of her other hand against the top of her suit.

Connington refilled their glasses.

Claire sipped at hers. Connington touched her shoulder and bent his head to say something. Her mouth opened in laughter. She reached out and touched his waist. Her fingers pinched the roll of flesh around his stomach. Her shoulder rose and her elbow stiffened. Connington clutched her wrist, then moved up to her arm, pushing back. He twisted away, hurriedly set his glass down, and splashed into the pool. His hands shot out and took her arm, pulling them forward.

Claire came sliding into the water on top of him, and they weltered down out of sight under the surface. A moment later, her head and shoulders broke out a few feet away, and she stroked evenly to the ladder, climbing out and stopping at the poolside to pull the top of her suit back up. She picked her towel from the grass with one swoop of her arm, threw it around her shoulders, and walked quickly off out of sight toward the other wing of the house.

Connington stood in the pool, watching her.

Then he swam forward, toward the diving board. For some time afterward, until the low sun was entirely in sight and the room where Hawks was sitting was filled with red, the sound of the thrumming board came vibrating into the timbers of the house at sporadic intervals.

At ten minutes of eight, a radio began playing loud jazz upstairs. Ten minutes later, the electric blat of the radio's alarm roiled the music, and a moment after that there was a brittle crash, and then only the occasional sound of Barker stumbling about and getting dressed.

Hawks went over to the bar, washed out his empty glass, and put it back in its rack.

Barker came down carrying a half-filled squareface bottle. He saw Hawks, grunted, hefted the bottle and said: "I hate the stuff. It tastes lousy, it makes me gag, it stinks, and it burns my mouth. But they keep putting it in your hands. And they fill their folklore with it. They talk gentleman talk about it—ages and flavors and brands and blends, as if it wasn't all ethanol in one concentration or another. Have you ever heard two Martini drinkers in a bar, Hawks? Have you ever heard two shamans swopping magic?" He dropped into an easy chair and

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laughed. "Neither have I. I synthesize my heritage. I look at two drunks in a saloon, and I extrapolate toward dignity. I suppose that's sacrilege."

He lit a cigarette, and said through the smoke: "But it's the best I can do, Hawks. My father's dead, and I once thought there was something good in shucking off my other kin. I wish I could remember what that was. I have a place in me that needs the pain."

Hawks went back to the settee and sat down. He put his hands on his knees and watched Barker.

"And talk," Barker said. "You're not fit company for them if you don't say 'eyther' and 'nyther' and 'tomahto.' If you've got a Dad, you're out. They only permit gentlemen with fathers in their society. And, yeah, I know they licked me on that. I wanted to belong—Oh, God, Hawks, how much I wanted to belong—and I learned all the passwords. What did it get me? Claire's right, you know—what did it get me?

"If she could see me, Hawks—if she could *see* me in that place!" Barker's face was aglow. "She wouldn't be playing footsie with you and Connington tonight—no, not if she could see what I do up there . . . how I dodge, and duck, and twist, and inch, and spring, and wait for the—the—"

"Easy, Barker!"

"Yeah. Easy. Slack off. Back away. It bites." Barker coughed out bitterly: "What're you doing here, anyway, Hawks? Why aren't you marching down that road again with your ass stiff and your nose in the air? You think it's going to do you any good, you sitting around here? What're you waiting for? For me to tell you sure, a little sleep and a little gin and I'm fine, just fine, Doctor, and what time do you want me back tomorrow? Call Washington, tell 'em the show's back on the road? Or do you want me to crack wide open, so you can really move in on Claire?

"A man should fight, Hawks," Barker said softly, his eyes distant. "A man should show he is never afraid to die. He should go into the midst of his enemies, singing his death song, and he should kill or be killed; he must never be afraid to meet the tests of his manhood. A man who turns his back—who lurks at the edge of the battle, and pushes others in to face his enemies—" Barker looked suddenly and obviously at Hawks. "That's not a man. That's some kind of crawling, wriggling thing."

Hawks got up, flexing his hands uncertainly, his arms awkward, his face lost in the shadows above the lamp's level. "Is that what you wanted me here for? So no one could say you wouldn't clasp the snake to your bosom?" He bent his head forward, peering down at Barker. "Is that it, warrior?" he

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asked inquisitively. "One more initiation rite? A truly brave man wouldn't hesitate to lodge assassins in his house, and offer them food and drink, would he? Let Connington the back-stabber come into your house. Let Hawks the murderer do his worst. Let Claire egg you on from one suicidal thing to the next, ripping off a leg here, another piece of flesh another time. What do you care? You're Barker, the Mimbreno warrior. Is that it?

"But now you won't fight. Suddenly, you don't want to go back into the formation. Death was too impersonal for you. It didn't care how brave you were, or what preparatory rites you'd passed through. That was what you said, wasn't it? You were outraged, Barker. You still are. What is Death, to think nothing of a full-fledged Mimbreno warrior?

"*Are* you a warrior?" he demanded. "Explain that part of it to me. What have you ever done to any of us? When have you ever lifted a finger to defend yourself? You see what we're about, but you do nothing. You're afraid to be thought a man who wouldn't fight, but what do you fight? The only thing you've ever done to me is threatened to pick up your marbles and go home.

"Do you know why you're still sane after today, Barker? I think I do. I think it's because you have Claire and Connington and me. I think it was because you had us to run to. It isn't really Death that tests your worth for you; it's the menace of dying. Not Death, but murderers. So long as you have us about you, your vital parts are safe."

Barker was moving toward him, his hands half-raised. Hawks said:

"It's no use, Barker. You can't do anything to me. If you were to kill me, you would have proved you were afraid to deal with me."

"That's not true," Barker said, high-voiced. "A warrior kills his enemies."

Hawks watched Barker's eyes. "You're not a warrior, Al," he said regretfully.

Barker's arms began to tremble. His head tilted sideward, and he looked at Hawks crookedly, his eyes blinking. "You're so smart!" he panted. "You know so damned much! You know more about me than I do. How is that, Hawks—who touched your brow with a golden wand?"

"I'm a man, too, Al."

"Yes?" Barker's arms sank down to his sides. The trembling swept over his entire body. "Yes? Well, I don't like you any better for it. Get out of here, man, while you still can." He whirled and crossed the room with short, quick, jerking steps. He flung open the door. "Leave me to my old, familiar assassins!"

Hawks looked at him and said

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nothing. His expression was troubled. Then he walked forward. He stopped in the doorway and stood face to face with Barker.

"I have to have you," he said. "I need your report to wire to Washington in the morning, and I need you to send up there into that thing, again."

"Get out, Hawks," Barker answered.

"I told you," Hawks said, and stepped out into the darkness.

Barker slapped the door shut. He turned away toward the corridor leading into the other wing of the house, his neck taut and his mouth opening in a shout. It came inaudibly through the glass between himself and Hawks: "Claire? Claire!"

Hawks walked out across the rectangle of light lying upon the lawn, until he came to the ragged edge that was the brink of the cliff above the sea. He stood looking out over the unseen surf, with the loom of sea-mist filling the night before him.

"An dark," he said aloud. "An dark an nowhere starlights." Then he began walking, head down, along the edge of the cliff, his hands in his pockets.

When he came to the flagstoned patio between the swimming pool and the far wing of the house, he walked toward the metal table and chairs in its center, picking his way in the indistinct light.

"Well, Ed," Claire said from her chair on the other side of the table. "Come to join me?"

He turned his head in surprise, then sat down. "I suppose."

Claire had changed into a dress, and was drinking a cup of coffee. "Want some of this?" she offered. "It's a chilly evening."

"Thank you." He took the cup as she reached it out to him, and drank from the side away from the thick smear of lipstick. "I didn't know you'd be out here."

She chuckled. "I get tired of opening doors and finding Connie on the other side. I've been waiting for better company."

"Al's up."

"Is he?"

He passed the coffee cup back to her. "I thought you might like to see him."

She reached across the table and took his hand. "Ed, do you have any idea of how lonely I get? How much I wish I wasn't me at all?" She tugged at his hand. "But what can I do about it?"

She rose to her feet, still holding his hand, and came around to stand in front of him, bent forward, clasping his fingers in both hands. "You could tell me you like me, Ed," she whispered. "You're the only one of them who could look past my outsides and *like* me!"

He stood up as she pulled at his hand. "Claire—" he began.

"No, no, no, Ed!" she said, put-

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ting her arms around him. "I don't want to talk. I want to just *be*. I want someone to just hold me and not think about me being a woman. I just want to feel warm, for once in my life—just have another human being near me!" Her arms went up behind his back, and her hands cupped his neck and the back of his head. "Please, Ed," she murmured, her face so close that her eyes brimmed and glittered in the faraway light, and so that in another moment her wet cheek touched his, "give me that if you can."

She began kissing his cheeks and eyes, her nails combing the back of his head. "Hawks," she choked, "Hawks, I'm so lost. . . ."

His head bent, her fingers rigid behind it, the tendons standing out in cords on the backs of her hands. Her lips parted, and her leather sandals made a shuffling noise on the patio stones. "Forget everything," she whispered as she kissed his mouth. "Think only of me."

Then she broke away suddenly, and stood a foot away from him, the back of one hand against her upper lip, her shoulders and hips lax. She was sighing rhythmically, her eyes shining. "No—no, I can't hold out . . . not with you. You're too much for me, Ed." Her shoulders rose, and she moved half a step toward him. "Forget about liking me," she said from deep in her throat as she reached toward him. "Just take me. I can always get someone else to like me."

Hawks did not move. She looked at him, arms outstretched, her face hungry. Then she sobbed sharply and cried out: "I don't blame you! I couldn't help it, but I don't blame you for what you're thinking. You think I'm some kind of nympho."

"Oh, no, Claire—I think you're just afraid of men. And you don't want them to find that out. Particularly not the ones you're most afraid of. You tell them they frighten you, but no one's supposed to think it's true, are they?"

She stared at him for a moment. Then her back arched, and her head was flung back. She laughed stridently: "Who're you trying to sell that to?" She straightened and took one or two aimless steps. "*You're* afraid, Hawks!" Her fingers dug into the dress fabric over her tensed thighs. "You're scared, Hawks. You're scared of a real woman, like so many of them are."

"If you were a real woman, would you blame me? I'm frightened of many things. People who waste things are among them."

"Why don't you just *shut up*, Hawks?" she cried. "What do you do, go through life making speeches? You know what you are, Hawks? You're a creep. A bore and a *creep*. A first class bore. I don't want you around any more.

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I don't want to ever see you again."

"I'm sorry you don't want to be any different, Claire. Tell me something. You almost succeeded, a moment ago. You came very close. It would be foolish for me to deny it. If you had done what you tried to do with me, would I still be a creep? And what would you be, making up to a man you despise, for safety's sake?"

"Oh, get *out* of here, Hawks!"

"Does my being a creep make me incompetent to see things?"

"When are you going to stop trying? I don't want any of your *stinking* help!"

"I didn't think you did. I said so. That's really all I've said." He turned away toward the house. "I'm going to see if Al will let me use his phone. I need a ride away from here. I'm getting too old to walk."

"Go to *Hell,* Hawks!" she cried out, following him at his own pace, a yard or two behind him.

Hawks walked away more quickly, his arms swinging through short arcs.

"Did you hear me? Get lost! Go on, get out of here!"

Hawks came to the kitchen door, and opened it. Connington was sprawled back against a counter, his beach shirt and his swimming trunks spattered with blood and saliva from his mouth. Barker's hand, tangled in his hair, was all that kept him from tipping over the high stool on which he was being held. Barker's fist was drawn back, smeared and running from deep tooth-gashes over the bone of his knuckles.

"Just passed out, that's all," Connington was mumbling desperately. "Just passed out in her bed, that's all—she wasn't anywhere around."

Barker's forearm whipped out, and his fist slapped into Connington's face again.

Connington fumbled apathetically behind him for a handhold. He had made no effort to defend himself at any time. "Only way you ever would. Find me there." He was crying without seeming to be aware of it. "I thought I had it figured out, at last. I thought today was the day. Never been able to make the grade with her. I can find the handle with everybody else. Everybody's got a weak spot. Everybody cracks, sometime, and lets me see it. Everybody. Nobody's perfect. That's the great secret. Everybody but her. She's got to slip sometime, but I've never seen it. Me, the hotshot personnel man."

"Leave him alone!" Claire screamed from behind Hawks. She clawed at Hawks' shoulder until he was out of the doorway, and then she raked at Barker, who jumped back with his hand clutching the furrows on his arm. "Get away from him!" she shout-

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ed into Barker's face, crouching with her feet apart and her quivering hands raised. She snatched up a towel, wet a corner of it in the sink, and went to Connington, who was slumped back against the stool, staring at her through his watered eyes.

She bent against Connington and began frantically scrubbing his face. "There, now, honey," she crooned. "There. There. Now." Connington put one hand up, palm out, his lax fingers spread, and she caught it, clutching it and pressing it to the base of her throat, while she rubbed feverishly at his smashed mouth. "I'll fix it, honey—don't worry. . . ."

Connington turned his head from side to side, his eyes looking blindly in her direction, whimpering as the cloth ground across the cuts.

"No, no, honey," she chided him. "No, hold still, honey. Don't worry. I need you, Connie. Please." She began wiping his chest, opening the top of the beach shirt and forcing it down over his arms, like a policeman performing a drunk arrest.

Barker said stiffly: "All right, Claire—that's it. I want your things out of here tomorrow." His mouth turned down in revulsion. "I never thought you'd turn carrion-eater."

Hawks turned his back and found a telephone on the wall. He dialled with clumsy haste. "This —this is Ed," he said, his throat constricted. "I wonder if you could possibly drive out to that corner on the highway, where the store is, and pick me up. Yes, I—I need a ride in, again. Thank you. Yes, I'll be there, waiting."

He hung up, and as he turned back, Barker said to him, his expression dazed: "How did you do it, Hawks?" He almost cried: "How did you manage this?"

"Will you be at the laboratory tomorrow?" Hawks said wearily.

Barker looked at him through his glittering black eyes. He flung out an arm toward Claire and Connington. "What would I have left, Hawks, if I lost you now?"

CHAPTER SIX

"You look tired," Elizabeth said as the studio's overhead fluorescents tittered into light and Hawks sat down on the couch.

He shook his head. "I haven't been working very hard. It's the same old story—when I was boy on the farm, I'd wear myself out with physical labor, and I'd have no trouble getting to sleep. But now I just sit around and think. I can't sleep at night, and I wake up in the morning feeling worse than I did the day before. I look at myself in the mirror, and a sick man looks back at me—the kind of a man I wouldn't trust to do his share, if we were on a job together."

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Elizabeth raised an eyebrow. "I think you could use some coffee."

He grimaced. "I'd rather have tea, if you have some."

"I think so. I'll see." She crossed the studio to the curtained-off corner where the hotplate and cupboard were. . . .

"Or—look," he called after her, "coffee would be fine, if there's no tea."

They sat on the couch together, drinking tea. Elizabeth put her cup down on the table. "What happened tonight?"

Hawks shook his head. Then, after a while, he said abruptly:

"Women—" he said earnestly —"women have always fascinated me. When I was a boy, I did the usual amount of experimenting. It didn't take me long to find out life wasn't like what happened in those mimeographed stories we had circulating around the high school. No, there was something else—what, I didn't know, but there was something about there being two sexes. I don't mean the physical thing. I mean, the intellectual problem.

"What bothered me was that here were these other intelligent organisms, in the same world with men. Now there were plenty of men to do the thinking. If all women were for was the continuance of the race, what did they need with intelligence at all? A simple set of instincts would have been enough. So why was it necessary for women to have intelligence? What function had forced them to evolve it?

"But I never found out. I've always wondered."

Elizabeth smiled at him. "Doctor, would you like another cup of tea?"

He stood up finally, his hands in his pockets, having sat without saying anything for a long time. "It's late. I'd better go," he said.

She drove him home to the stuccoed pastel apartment house, built in the mid 1920's, where he had his one-and-one-half room efficiency flat.

"Call me again when you need me," she said.

"I—I will. Look; I don't want you to always have to come rescue me, or listen to my troubles. I want—" He gestured vaguely. "I don't know what I want for the two of us. But I don't want it to always be like this."

"Finish the project," she smiled, "and there'll be time."

"Yes," he said bleakly.

CHAPTER SEVEN

Barker came into the laboratory the next day with his eyes red-rimmed. His hands shook as he got into his undersuits.

Hawks walked up to him. "Are you sure you're all right? If you're

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not feeling well, we can cancel until tomorrow."

Barker said: "Just stop worrying about me."

Hawks put his hands in his pockets. "Well. Have you been to see the navigating specialists?"

Barker nodded.

"Were you able to give them a clear account of yesterday's results?"

"They acted happy. Why don't you wait until they get it digested and put the reports on your desk? What does it matter to you what I find up there? All I'm doing is blazing a trail so your smart technicians won't trip over anything when they go up to there to take it apart, right? So what's it to you, unless you lose me and have to go find a new boy, right? So why don't you just leave me alone? I'm here to do something. I intend to do it. It's all I want to do, right now. All right?"

Hawks nodded. "All right, Barker. I hope it doesn't take too long to do."

That day, the elapsed time Barker was able to survive within the formation was raised to four minutes, thirty-eight seconds.

On the day that the elapsed time was brought up to six minutes, twelve seconds, Hawks was in his office, tracing his fingertip down the crumpled chart, when his desk telephone rang.

He glanced at it with a flicker of his eyes, hunched his shoulders, and continued with what he was doing. His fingertip moved along the uncertain blue line, twisting between the shaded red areas, each marked with its instruction and relative time bearing, each bordered by its drift of black x's, as if the chart represented a diagram of a prehistoric beach, where one stumbling organism had marked its labored trail up upon the littered sand, between the long rows of drying kelp and other flotsam which now lay stranded under the lowering sky. He stared down raptly at the chart, his lips moving, then closed his eyes, frowned, and repeated bearings and instructions, opening his eyes and leaning forward again.

The telephone rang once more, softly but without stopping. He tightened his hand into a momentary fist, then pushed the chart aside and took the handset off its cradle. "Yes, Vivian," he said.

He listened, and finally said: "All right. Let him come in."

Hawks looked up curiously from behind his desk as Connington walked slowly across the office. "Wanted to talk to you," he mumbled as he sat down. "It seemed as if I ought to." His eyes searched restlessly back and forth.

"Why?" Hawks asked.

"Well—I don't know, exactly. Except that it wouldn't feel right, just sort of letting it drop. There's

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—I don't know, exactly, what you'd call it, but there's a pattern to life . . . ought to be a pattern, anyhow; a beginning, a middle, and an end. Chapters, or something. I mean, there's got to be a pattern, or how could you control things?"

"I can see that it might be necessary to believe that," Hawks said patiently.

"You still don't give an inch, do you?" Connington said.

Hawks said nothing, and Connington waited a moment, then let the matter drop. "Anyhow," he said, "I wanted you to know I was leaving.

Hawks sat back in his chair and looked at him expressionlessly. "Where are you going?"

Connington gestured vaguely. "East. I'll find a job there, I guess."

"Is Claire going with you."

Connington nodded, his eyes on the floor. "Yes, she is." He looked up and smiled desperately. "It's a funny way to have it end up, isn't it?"

"Exactly the way you planned it," Hawks pointed out. "All but the part about eventually becoming company president."

Connington's expression set into a defiant grin. "Oh, I didn't really figure it was as sure a thing as that. I just wanted to see what happened when I put some salt on your tail." He stood up quickly. "Well, I guess that's that. I just wanted to let you know how it all came out in the end."

"Well, no, "Hawks said. "Barker and I are still not finished."

"I am," Connington said defiantly. "I've got my part of it. Whatever happens from now on doesn't have anything to do with me."

"Then you're the winner of the contest."

"Sure," Connington said.

"And that's what it always is. A contest. And then a winner emerges, and that's the end of that part of everyone's life. All right. Goodbye, Connington."

"Goodbye, Hawks." He turned away, and hesitated. He looked back over his shoulder. "I guess that was all I wanted to say. I could have done it with a note or a phone call." He shook his head, puzzled, and looked to Hawks as if for an answer to a question he was asking himself. "I didn't have to do it at all."

Hawks said gently: "You just wanted to make sure I knew who the winner was, Connington. That's all."

"I guess," Connington said unsurely, and walked out slowly.

The next day, when the elapsed time was up to six minutes, thirty-nine seconds, Hawks came into the laboratory and said to Barker: "I understand you're moving into the city, here."

"Who told you?"

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"Winchell." Hawks looked carefully at Barker. "The new personnel director."

Barker grunted. "Connington's gone East, someplace." He looked up with a puzzled expression on his face. "He and Claire came out to get her stuff yesterday, while I was here. They smashed all those windows looking from the living room out on the lawn. I'll have to have them all replaced before I can put the place up for sale. I never thought he was like that."

"I wish you'd keep the house. I envy you it."

"That's none of your business, Hawks."

Nevertheless, the elapsed time had been brought up to six minutes, thirty-nine seconds.

The day the elapsed time reached nine minutes, thirty seconds, Hawks said to Barker:

"I'm worried. If your elapsed time grows much longer, the contact between M and L will become too fragile. The navigating team tells me your reports are growing measurably less coherent."

"Let 'em try going up there, then. See how much sense they can make out of it." Barker licked his lips. His eyes were hollow.

"That's not the point."

"I know what the point is. There's another point. You can stop worrying. I'm almost out the other side."

"They didn't tell me that," Hawks said sharply.

"They don't know. But I've got a feeling."

"A feeling."

"Doctor, all that chart shows is what I tell it after I've done a day's work. It has no beginning and no end, except when I put one there. Tomorrow, I put the end to it." He looked around the laboratory, his face bitter. "All this plumbing, Doctor, and in the end it comes down to all revolving around one man." He looked at Hawks. "One man and what's in his mind. Or maybe two of us. I don't know. What's in your mind, Hawks?"

Hawks looked at Barker. "I don't pry into your mind, Barker. Don't set foot in mine. I have a telephone call to make."

He walked away across the laboratory, and dialed an outside number. He waited for the answer, and as he waited, he stared without focussing at the blank wall. Suddenly he moved in a spasm of action and smashed the flat of his free hand violently against it. Then the buzz in the earpiece stopped with a click, and he said eagerly:

"Hello? Elizabeth? This—this is Ed. Listen—Elizabeth—oh, I'm all right. Busy. Listen—are you free tonight? It's just that I've never taken you to dinner, or dancing, or anything. . . . Will you? I—" He smiled at the wall.

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"Thank you." He hung up the telephone and walked away. He looked back over his shoulder, and saw that Barker had been watching him, and he started self-consciously.

CHAPTER EIGHT

"Elizabeth—" he began, and then waved his arm annoyedly. "No. It was all going to come out in a rush. It does, so often."

They were standing atop an arm of rock that thrust out seaward into the surf. Hawks' collar was turned up, and he held his jacket together with one hand. Elizabeth was wearing a coat, her hands in its pockets, a kerchief over her hair. The Moon, setting on the horizon, reflected its light upon the traceries of clouds overhead. Elizabeth smiled up at him, her wide mouth stretching. "This is a very romantic spot you've brought us to, Edward."

"I—I was just driving. I didn't have any particular place in mind." He looked around. "I have things—things I want to say. Tonight. No later." He took a step forward, turned, and stood facing her, staring rigidly over her shoulder at the empty beach, the rise of the highway with his car parked on its shoulder, and the eastern sky beyond. "I don't know what shape they'll take. But they have to come out. If you'll listen."

"Please."

He shook his head at her, then forced his hands into his hip pockets and kept his body rigid.

"Listen—the thing is, people say when a man dies: 'Well, he had a full life, and when his time came, he went peacefully.' Or they say: 'Poor boy—he'd barely begun to live.' But the thing is, dying *isn't* an *incident*. It isn't something that happens to a man on one particular day of his life, soon or late. It happens to the *whole* man—to the boy he was, to the young man he was—to his joys, to his sorrows, to the times he laughed aloud, to the times he smiled. Whether it's soon or late, how can the dying man possibly feel it was *enough* of a life he lived, or not enough? Who measures it? Who can decide, as he dies, that it was *time*? Only the body reaches a point where it can't move anymore. The mind—even the senile mind, fogged by the strangling cells of its body's brain—rational or irrational, broad or narrow; that *never* stops; no matter *what*, as long as one trickle of electricity can seep from one cell to another, still it functions; still it *moves*—how can *any* mind, ever, say to itself: 'Well, this life has reached its logical end,' and shut itself down? Who can say: 'I've seen enough'? Even the suicide has to *blow* his brains out, because he has to destroy the physical thing to evade what's in his mind that will not let him rest.

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"The mind, Elizabeth—intelligence; the ability to *look* at the Universe; to *care* where the foot falls, what the hand touches—how can it help but go on, and on, drinking in what it perceives around it?"

His arm swept out in a long, stiff arc that swept over the beach and the sea. "*Look* at this! All your life, you'll have this, now! And so will I. So will I. In our last moments, we will still be able to look back, to *be* here again. Years away from here, and thousands of miles away from here, we would still have it. Time, space, entropy—no attribute of the Universe can take this from us, except by killing us; by crushing us out.

"The thing is, the Universe is *dying*! The stars are burning their substance. The planets are moving more slowly on their axes. They're falling inward toward their suns. The atomic particles that make it all up are slowing in their orbits. Bit by bit, over the countless billions of years, it's slowly happening. It's all running down. Someday, it'll stop. Only one thing in the entire Universe grows fuller, and richer, and *forces* its way uphill. Intelligence—human *lives*—we're the only things there are that don't obey the Universal law.

"The Universe kills our bodies; it drags them down with gravity, it drags, and drags, until our hearts grow tired with pumping our blood against its pull, until the walls of our cells break down with the weight of themselves, until our tissues sag, and our bones grow weak and bent. Our lungs tire of pulling air in and pushing it out. Our veins and capillaries break with the strain. Bit by bit, from the day we're conceived, the Universe rasps and plucks at our bodies until they can't repair themselves any longer. And in that way, in the end, it kills our brains.

"But our *minds* . . .

"*There's* the precious thing; there's the phenomenon that has nothing to do with time and space except to use them; to describe to itself the lives our bodies live in the physical Universe.

"Listen—when I was a little boy, my father took me out for a walk, late one night after a snowfall. We walked along, down a road that had just been ploughed. The stars were out, and so was the Moon. It was a cold, clear night, with the snow drifted and mounded, sparkling in the light. And on the corner where our road met the highway, there was a street lamp on a high pole.

"And I made a discovery. It was cold enough to make my eyes water, and I found out that if I kept them almost closed, the moisture diffused the lights, so that everything—the Moon, the stars, the street lamp—seemed to have halos and points of scattered light

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around it. The snowbanks seemed to glitter like a sea of spun sugar, and all the stars were woven together by a lace of incandescence, so that I was walking through a Universe so wild, so wonderful, that my heart nearly broke with its beauty.

"For years, I carried that time and place in my mind. It's still there. But the thing is, the *Universe* didn't make it. *I* did. I *saw* it, but I saw it because I made myself see it. I took the stars, which are distant suns, and the night, which is the Earth's shadow, and the snow, which is water undergoing a state-change, and I took the tears in my eyes, and I made a wonderland. No one else has ever been able to see it. No one else has ever been able to go there. Not even I can ever return to it physically; it lies thirty-eight years in the past, in the eye-level perspective of a child, its stereoscopic accuracy based on the separation between the eyes of a child. In only one place does it actually exist. In my mind, Elizabeth—in *my* life.

"But I will die, and where will it be, then?"

Elizabeth looked up at him. "In my mind, a little? Along with the rest of you?"

Hawks looked at her. He reached out and, bending forward as tenderly as a child receiving a snowflake to hold, gently enclosed her in his arms. "Elizabeth, Elizabeth," he said. "I never realized that. I never realized what you were letting me do."

"I love you."

They walked together down the beach. "When I was a little girl," she said, "my mother registered me with Central Casting and tried to get me parts in the movies. I remember, one day there was a call for someone to play the part of a Mexican sheepherder's daughter, and my mother very carefully dressed me in a little peasant blouse and a flowered skirt, and bought a rosary for me to hold. She braided my hair, and darkened my eyebrows, and took me down to the studio.

"When we got back to the house that afternoon, my aunt said to my mother: 'Didn't get it, huh?' And my mother, who was in a tearful fury, said: 'It was the lousiest thing I've ever seen! It was terrible! She almost had it, but she got beaten out by some little Spic brat!'

Hawks tightened the arm he held around her shoulders. He looked out to sea, and up at the sky. "This is a beautiful place!" he said.

CHAPTER NINE

Barker was leaning against a cabinet when Hawks came into the laboratory in the morning and walked up to him.

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"How do you feel?" Hawks asked, looking sharply at him. "All right?"

Barker smiled faintly. "What do you want to do? Touch gloves before we start the last round?"

"I asked you a question."

"I'm fine. O.K., Hawks? What do you want me to tell you? That I'm all choked up with pride? That I know this is an enormous step forward in science, in which I am honored to find myself participating on this auspicious day? I already got the Purple Heart, Doc—just gimme a coupla aspirin."

Hawks said earnestly: "Barker, are you quite sure you'll be able to come out through the other side of the formation?"

"How can I be sure? Maybe part of its logic is that you can't win. Maybe it'll kill me out of simple spite. I can't tell about that. All I can promise you is that I'm a move away from the end of the only safe pathway. If my next move doesn't get me outside, then there isn't any way out. It *is* a tomato can, and I've hit bottom. But if it's something else, then, yes, today is the day; the time is now."

Hawks nodded. "That's all I can ask of you. Thank you." He looked around. "Is Sam Latourette at the transmitter?"

Barker nodded. "He told me we'd be ready to shoot in about half an hour."

Hawks nodded. "All right. Fine. You might as well get into your undersuits. But there'll be some delay. We're going to have to take a preliminary scan on me, first. I'm going along with you."

Barker ground his cigarette out under his heel. He looked up. "I suppose I should say something about it. Some kind of sarcastic remark about wading intrepidly into the hostile shore after the troops have already taken the island. But I'll be damned if I thought you'd do it at all."

Hawks said nothing, and walked away across the laboratory floor toward the transmitter.

"You knew we had extra suits," he said to Latourette, lying down in the opened armor. The Navy men worked around him, adjusting the set-screws on the pressure plates. The ensign stood watching closely, an uncertain frown on his face.

"Yes, but that was only in case we lost one in a bad scan," Latourette argued, his eyes stubborn. "Ed, being able to do something, and doing it, are two different things. I—"

"Look, you know the situation. You know what we're doing here as well as I do."

"Ed! Any number of things could still go wrong up there today!"

"Suppose they don't. Suppose Barker makes it. Then what? Then

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he stands there, and I'm down here." He fitted his left hand carefully into its gauntlet inside its tool cluster. The dressers closed the armor. He was wheeled into the chamber, surrounded by the hundred thousand glittering eyes of the scanner faces.

The lights came on in the receiver. He opened his eyes, blinking gently. The receiver door was opened, and the table was slipped under him. The lateral magnets slacked off as their rheostats were turned down, and he drifted into contact with the plastic surface. "I feel normal," he said. "Did you get a good file tape?"

"As far as we know," Sam said into his microphone. "The computers didn't spot any breaks in the transmission."

"Well, that's as good as we can do," Hawks said. "All right—put me back in the transmitter, and hold me there. Get Barker into his suit, jack down the legs on the table, and slide him in under me. Today," he said, "marks another precedent in the annals of exploration. Today, we're going to send a sandwich to the Moon."

Fidanzato, wheeling the table across the laboratory floor, laughed. Latourette jerked his head sideward and looked at him desperately.

Starlight shone down upon them with cold, drab intensity, stronger than anything falling from a Moonless sky upon the Earth at night, but punched through with sharp rents of shadow at every hump and jag of the terrain. From ground level, it was possible to make out the vague shapes of the working Naval installation, each dome and burrow with its latticework of overhead camouflage lying like the wreck of a zeppelin to Hawks' right, looking vaguely gray-green in color, with no lights showing.

Hawks took a deep breath. "All right, thank you," he said to the Navy receiver crew, his voice distant, mechanical, and businesslike over the radiotelephone circuit. "Are the observer teams ready?"

A Navy man, with a lieutenant's bars painted on his helmet, nodded and gestured toward the left. Hawks turned his head slowly, his expression reluctant, and looked to where the humps of the observation bunker clustered as though huddled in the lee of a cliff, at the foot of the looming black and silver formation.

"The walkway's over here," Barker said, touched Hawks forearm with the tool cluster at the end of his right sleeve. "Let's go—we'll run out of air, if we wait for you to dip your toe in the water."

"All right." Hawks moved to follow Barker under the camouflage roofing which followed, like a pergola on which no vines would

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climb, above the track which had been smoothed for a footpath between the receiver dome and the formation.

The Navy lieutenant made a hand signal of dismissal and began walking away, followed by his working party, taking the other path which led back to their station and their workaday concerns.

"All set?" Barker asked when they reached the formation. "Flash your light toward the observers, there, so they'll know we're starting."

Hawks raised one of his hands and winked its worklight. An acknowledging point of light appeared upon the featureless black face of the bunker.

"That's all there is to it, Hawks. I don't know what you're waiting for. Just do what I do, and follow me. Let's hope this gizmo doesn't mind my not being alone."

"That's an acceptable risk," Hawks said.

"If you say so, Doctor." Barker put his arms out and placed the inner faces of his sleeves against the rippling, glossy wall in which the walkway dead-ended. He shuffled sideward and there was a sharp *spang* inside Hawks' armor, cracking up through his bootsoles, as the wall accepted Barker and sucked him through.

Hawks looked down at the loose gravel of the walkway, covered with bootprints as though an army had marched past. He came up to the wall and raised his arms, perspiration running down his cheeks faster than the suit's dehumidifiers could dry it.

Barker was scrambling up a tilting plane of glittering blue-black, toward where two faces of coarse dull brown thudded together repeatedly. Curtains of green and white swirled around Hawks. He broke into a run, as shafts of crystal transparency opened through the folds of green and white, with flickering red light dimly visible at their far ends and blue, green, yellow heaving upward underfoot.

Hawks ran with his arms pressed to his sides. He came to where he had seen Barker leave his feet and dive forward, rolling over as he skittered sideward along the running stream of yielding, leaf-like pale fringes. As he dove, he passed over a twisted body in a type of armor that had been discarded.

Barker's white armor suddenly bloomed with frost which scaled off as he ran and lay in Hawks' way like moulds of the equipment, in a heap of previous sleeves, legs, and torsos, to which Hawks' armor added its own as he passed.

Hawks followed Barker down the spiraling funnel whose walls smeared them with light gray powder which fell from their armor slowly, in long, delicate strands, as they swung themselves

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out to pass Rogan's body, which lay half out of sight in a heap of glazed semicircles like a shipment of broken saucers that had been discarded.

Barker held up his hand, and they stopped at the edge of the field of cross-hatched planes, standing together, looking into each other's faces below the overhang of the polished tongue of blue-black metal which jutted out above them, rusted a coarse dull brown where Barker had once crawled out on it and now lay sprawled with one white sleeve dangling, a scrap of green surfacing clutched in the convulsively jammed pincers of his tool cluster. Barker looked up at it, back at Hawks, and winked. Then he took hold of one of the crystalline, transparent projections jutting out from the flickering red wall and swung himself out toward the next one, passing out of sight around the bend where blue, green, yellow light could be seen streaming.

Hawks' armored feet pattered at the empty air as he followed around the corner. He went hand-over-hand, carefully keeping his body strained upward to keep his shoulders above the level of his hands as he moved sideward along the high, scalloped coaming of pale yellow, each half-curved leaf yielding waxily to his weight and twisting down almost to where his pincers lost their grip on the surface, which their needle points could not penetrate. He had to cross his arms and shift his weight from each scallop to the next before it had time to drop him, and as he moved along he had to twist his body to avoid the spring-back of each half-saucer from which his grip had been discarded. Down below lay a tangle of broken armor; twisted sleeves and legs and torsos.

Hawks came, eventually, to where Barker lay on his back, resting. He began to sit down beside him, lowering himself awkwardly. Suddenly he threw a glance at his wrist, where the miniaturized gyrocompass pointed at Lunar north. He twisted his body, trying to regain his balance, and finally stood panting, on one foot like a water bird, while Barker steadied him. Overhead, orange traceries flickered through a glassy red mass shaped like a giant rat's head, and then reluctantly subsided.

They walked along an enormous, featureless plain of panchromatic grays and blacks, following a particular line of footprints among a fan of individual tracks, all of them ending in a huddle of white armor except for this, on which Barker would stop, now and then, just short of his own corpse each time, and step to one side, or simply wait a bit, or shuffle by sideward. Each time he did so, the plain would suddenly flicker back into color from Hawks'

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point of view. Each time he followed Barker's lead, the color would die, and his suit would thrum with a banging, wooden sound.

At the end of the plain was a wall. Hawks looked at his wristwatch. Their elapsed time inside the formation was four minutes, fifty-one seconds. The wall shimmered and bubbled from their feet up into the black sky with its fans of violet light. Flowers of frost rose up out of the plain where their shadows fell, standing highest where they were farthest from the edges and so least in contact with the light. The frost formed humped, crude white copies of their armor, and, as Hawks and Barker moved against the wall, lay for one moment open and exposed, then burst silently from steam pressure, each outflying fragment of discard trailing a long, delicate strand of steam as it ate itself up and the entire explosion reluctantly subsided.

Barker struck the wall with a sharp rock-hammer, and a glittering blue-black cube of its substance sprang away from it, exposing a coarse brown flat surface. Barker tapped lightly, and it changed color to a glittering white alive with twisting green threads. The facing of the wall turned crystalline and transparent, and disappeared. They stood on the lip of a lake of smoking red fire. On its shore, half-buried, the white paint sooted yellow, charred and molten so that it had run like a cheap crockery glaze, lay Barker's armor. Hawks looked at his wristwatch. Their elapsed time inside the formation was six minutes, thirty-eight seconds. He turned and looked back. On the open, panchromatic plain, a featureless cube of metal lay glittering blue-black. Barker turned back, picked it up, and threw it down on the ground. A coarse brown wall rose up into the air between them and the plain, and behind them, the fire snuffed out. Where Barker's burnt armor had been, was a heap of crystals at the edge of a square, perhaps a hundred meters to a side, of lapis lazuli.

Barker stepped out on it. A section of the square tilted, and the crystals at its edge slid out across it in a glittering fan. Barker walked down carefully among them, until he was at the other edge of the section, steadying it with his weight. Hawks climbed up onto the slope and walked down to join him. Barker pointed. Through the crack between the section and the remainder of the square, they could see men from the observation team, peering blindly in at them. Hawks looked at his wristwatch. Their elapsed time inside the formation was six minutes, thirty-nine seconds. Lying heaped and barely visible between them and the observation

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team was Barker. The crystals on their section were sliding off into the crack and falling in long, delicate strands of snow upon the dimly seen armor.

Barker clambered up onto the lazuli square. Hawks followed him, and the section righted itself behind him. They walked out for several meters, and Barker stopped. His face was strained. His eyes were shining with exhilaration. He glanced sideward at Hawks, and his expression grew wary.

Hawks looked pointedly down at his wristwatch. Barker licked his lips, then turned and began to run in a broadening spiral, his boots scuffing up heaps of crystals, at each of which he ducked his head as waves of red, green, yellow light dyed his armor. Hawks followed him, the lazuli cracking out in great radiations of icy fractures that criss-crossed into a network under his feet as he ran around and around.

The lazuli turned steel-blue and transparent, and then was gone, leaving only the net of fractures, on which Barker and Hawks ran, while below them lay the snowed armor and the observing team standing oblivious a few inches from it, and the stars and jagged horizon of the Moon behind them, a broken face against which the arc of the sky was fitted.

Their elapsed time inside the formation was nine minutes, nineteen seconds. Barker stopped again, his feet and pincers hooked in the network, hanging motionless, looking back over his shoulder as Hawks came up. Barker's eyes were desperate. He was breathing in gasps, his mouth working. Hawks clambered to a stop beside him.

The net of fractures began to break into dagger-pointed shards, falling away, leaving great rotten gaps through which swirled clouds of steel-gray smokey particles which formed knife-sharp layers and hung in the great open space above the footing to which Hawks and Barker clung, and whose fringes whirled up and across to interlock the layers into a grid of stony, cleavage-planed cross-hatchings which advanced toward them.

Barker suddenly closed his eyes, shook his head violently in its casque, blinked, and, with a tearful grimace, began to climb up the net, holding his left arm pressed against his side, clutching above him for a new handhold with his right as soon as his weight was off each toehold which his left foot discarded.

When Hawks and Barker emerged at the rim of the net, beside the drifted armor which lay under its crust of broken dagger-points, their elapsed time inside the formation was nine minutes, forty-two seconds. Barker faced the observing team through the

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wall, and stepped out onto the open Moon. Hawks followed him. They stood looking at each other through their faceplates, the formation directly behind them.

Barker looked at it. "It doesn't look as if it knows what we've done," he said over the radiotelephone circuit.

Hawks cast a glance behind him. "Did you expect it to?" he shrugged. He turned to the observer team, who were standing, waiting, in their Moonsuits, their faces patient behind the transparent plastic bubbles of their helmets.

"Did you gentlemen see anything new happen while we were in there?"

The oldest man on the team, a gray-faced, drawn individual whose steel-rimmed spectacles were fastened to an elastic headband, shook his head. "No," his voice came distorted through his throat microphone. "The formation shows no outward sign of discriminating between one individual and another, or of reacting in any special way to the presence of more than one individual. That is, I suppose, assuming all its internal strictures are adhered to."

Hawks nodded. "That was my impression, too." He turned toward Barker. "That very likely means we can now begin sending technical teams into it. I think you've done your job, Al. I really think you have. Well, let's come along with these gentlemen, here, for a while. We might as well give them our verbal reports, just in case Hawks and Barker L had lost contact with us before we came out." He began to walk along the footpath toward the observation bunker, and the others fell in behind him.

Latourette knelt down and bent over the opened faceplate. "Are you all right, Ed?" he asked.

Hawks L looked muzzily up at him. There was a trickle of blood running out of the corner of his mouth. He licked at it, running his tongue over the bitten places in his lower lip. "Must have been more frightened than I thought, after M drifted away from me and I realized I was in the suit." He rolled his head from side to side, lying on the laboratory floor. "Barker all right?"

"They're getting him out of the receiver now. He seems to be in good shape. Did you make it all right?"

Hawks L nodded. "Oh, yes, that went well. The last I felt of M, he was giving the observation team a verbal report." He blinked to clear his eyes. "That's quite a place, up there. Listen—Sam—" He looked up, his face wrinkled into an expression of distaste as he looked at the man. When he was a boy, and suffering from a series

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of heavy colds, his father had tried to cure them by giving him scalding baths and then wrapping him in wet sheets, drawing each layer tight as he wound it around Eddie Hawks' body and over his arms, leaving the boy pinned in, in this manner, overnight. "I—I hate to ask this," he said, not realizing that the expression on his face was turned directly up at Latourette, "but do you suppose the crew could get me out of my suit before they do Barker?"

Sam, who had at first been watching Hawks with interest and concern, had by now become completely offended. "Of course," he said and stalked away, leaving Hawks L alone on the floor, like a child in the night. He lay that way for several moments before one of the technicians who stood in a ring around him realized he might want company and knelt down beside him, in range of the restricted field of vision through the faceplate opening.

Hawks M watched the chief observer close his notebook. "I think that does it, then," he said to the man. Barker, who was sitting beside him at the steel table, nodded hesitantly.

"I didn't see any lake of fire," he said to Hawks.

Hawks shrugged. "I didn't see any jagged green glass archway in its place." He stood up and said to the observer team: "If you gentlemen would please re-fasten our faceplates for us, we'll be on our way."

The observers nodded and stepped forward. When they were done, they turned and left the room through the airtight hatch to the bunker's interior, so that Hawks and Barker were left alone to use the exterior airlock. Hawks motioned impatiently as the demand valve in his helmet began to draw air from his tanks again, its sigh filling his helmet. "Come along, Al," he said. "We don't have much time."

Barker said bitterly as they cycled through the lock: "It sure is good to have people make a fuss over you and slap you on the back when you've done something."

Hawks shook his head. "These people, here, have no concern with us as individuals. Perhaps they should have had, today, but the habit would have been a bad one to break. Don't forget, Al—to them, you've never been anything but a shadow in the night. Only the latest of many shadows. And other men will come up here to die. There'll be times when the technicians slip up. There may be some reason why even you, or perhaps even I, will have to return here. These men in this bunker will watch, will record what they see, will do their best to help pry information out of this thing—" He gestured toward the obsidian hulk, toppling perpetu-

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ally, perpetually re-erecting itself, shifting in place, looming over the bunker, now reflecting the light of the stars, now dead black and lustreless. "This enormous puzzle. But you and I, Al, are only a species of tool, to them. It has to be that way. They have to live here until one day when the last technician takes the last piece of this thing apart. And then, when that happens, these people in this bunker, here, will have to face something they've been trying not to think about, all this time."

Hawks and Barker moved along the footpath.

"You know, Hawks," Barker said uncomfortably, "I almost didn't want to come out."

"I know."

Barker gestured indecisively. "It was the damnedest thing. I almost led us into the trap that caught me last time. And then I almost just stayed put and waited for it to get us. Hawks, I just—I don't know. I didn't want to come out. I had the feeling I was going to lose something. What, I don't know. But I stood there, and suddenly I knew there was something precious that was going to be lost if I came back out onto the Moon."

Hawks, walking steadily beside Barker, turned his head to look at him for the first time since they had left the bunker. "And did you lose it?"

"I—I don't know. I'll have to think about it for a long time, I think. I feel different. I can tell you that much." Barker's voice grew animated. "I do."

"Is this the first time you've ever done something no other man has ever done before? Done it successfully, I mean?"

"I—well, no, I've broken records of one kind or another, and —"

"Other men had broken records at the same things, Al."

Barker stopped, and looked at Hawks. "I think that's it," he frowned. "I think you're right. I've done something no other man has ever done before. And I didn't get killed for it."

"No precedent and no tradition, Al, but you did it anyway." Hawks, too, had stopped. "Perhaps you've become a man in your own right?" His voice was quiet, and sad.

"I may have, Hawks!" Barker said excitedly. "Look—you can't —that is, it's not possible to take in something like this all at once —but—". He stopped again, his face looking out eagerly through his faceplate.

They had come almost to the point where the footpath from the bunker joined the system of paths that webbed the terrain between the formation, the receiver, the Navy installation, and the motor pool where the exploration halftracks stood. Hawks waited,

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motionless, patiently watching Barker, his helmet bowed as he peered.

"You were *right,* Hawks!" Barker said in a rush of words. "Passing initiations doesn't mean a thing, if you go right back to what you were doing before; if you don't *know* you've changed! A man—a man makes himself. He—oh, God *damn* it, Hawks, I tried to be what *they* wanted, and I tried to be what I thought I *should* be, but what *am* I? That's what I've got to find out—that's what I've got to make something of! I've got to go back to Earth and straighten out all those *years!* I—Hawks, I'm probably going to be damned grateful to you."

"Will you?" Hawks began walking again. "Come with me, Al."

Barker trotted after him. "Where are you going?"

Hawks continued to walk until he was on the track that led to the motor pool, and continued past it for a short distance before the camouflaging stopped and the naked terrain lay nearly impassable to an armored man on foot. He waved shortly with one arm. "Out that way."

"Aren't you taking a chance? How much air is there in these suits?"

"Not much. A few minutes' more."

"Well, let's get back to the receiver, then."

Hawks shook his head. "No."

"What do you mean? The return transmitter's working, isn't it?"

"It's working. But we can't use it."

"Hawks—"

Hawks reached out and awkwardly touched his right sleeve to the man's armored shoulder. "Long ago, I told you I'd kill you in many ways, Al. When each Barker L, came back to consciousness on Earth after each Barker M died, I was letting you trick yourself. You thought then you'd already felt the surest death of all. You hadn't. I have to do it once more.

"There was always a continuity. Barker M and L seemed to be the same man, with the same mind. When M died, L simply went on. The thread was unbroken, and you could continue to believe that nothing, really, had happened. I could tell you, and you could believe, that in fact there was only a succession of Barkers whose memories dovetailed perfectly. But that's too abstract a thing for a human being really to grasp. At this moment, I think of myself as the Hawks who was born, years ago, in the bedroom of a farm home. Even though I know there's another Hawks, down in the laboratory on Earth, who's been living his own life for some moments, now; even though I know I was born from the ashes of this world

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twenty minutes ago, in the receiver. All that means nothing to the me who has lived in my mind all these years. I can look back. I can remember.

Barker said: "Get to the point!"

"Look, Barker—it's simply that we don't have the facilities, here, for accurately returning individuals to Earth. We don't have the computing equipment, we don't have the electronics hardware, we don't have any of the elaborate safeguards. We will have. Soon we'll have hollowed out a chamber large enough to hold them underground, where they'll be safe from accidents as well as observation. Then we'll either have to pressurize the entire chamber or learn to design electronic components that'll work in a vacuum. And if you think that's not a problem, you're wrong. But we'll solve it. When we have time.

"There's been no *time*, Al. These people here—the Navy men, the observers—think of them. They're the best people for their jobs. And all of them, here, know that when they came up here, counterparts of theirs stayed behind on Earth. They had to. We couldn't drain men like those away from their jobs. We couldn't risk having them die—no one knew what might happen up here. Terrible things still might.

"They all volunteered to come up here. They all understood. Back on Earth, their counterparts are going on as though nothing had happened. There was one afternoon in which they spent a few hours in the laboratory, of course, but that's already a minor part of their past, for them.

"All of us up here are shadows, Al. But they're a particular kind. Even if we had the equipment, they couldn't go back. When we do get it, they still won't be able to. We won't stop them if they want to try, but, think, Al, about that man who leads the observation team. Back on Earth, his counterpart is pursuing a complicated scientific career. He's accomplished a lot since the day he was duplicated. He has a career, a reputation, a whole body of experience which this individual, up here, no longer shares. And the man here has changed, too—he knows things the other doesn't. He has a whole body of divergent experience. If he goes back, which of them does what? Who gets the career, who gets the family, who gets the bank account? It'll be years, up here, before this assignment is over. There'll have been divorces, births, deaths, marriages, promotions, degrees, jail sentences, diseases—No, most of them won't go back. But when this ends, where *will* they go?

"We'd better have something for them to do. Away from Earth—away from the world that has no room for them. We've created a whole corps of men with the

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strongest possible ties to Earth, and no future except in space. But where will they go? Mars? Venus? We don't have rockets that will drop receivers for them there. We'd better have—but suppose some of them have become so valuable we don't dare not duplicate them again? Then what?

"You called them zombies, once. You were right. They're the living dead, and they know it. And they were made, by me, because there wasn't *time.* No time to do this systematically, to think this out in all its aspects.

"And for you and me, now, Al, there's the simple fact that we have a few minutes' air left in our suits and can't go back, at all."

"For Pete's sake, Hawks, we can walk into any one of these bubbles, here, and get all the air we want!"

Hawks asked slowly: "And settle down and stay here, you mean, and go back in a year or two?" You can if you want to, I suppose. What will you do, in that time? Learn to do something useful, here, wondering what you've been doing meanwhile, on Earth?"

Barker said nothing for a moment. Then he said: "You mean, I'm stuck here." His voice was quiet. "I'm a zombie. Well, is that bad? Is that worse than dying?"

"I don't know," Hawks answered. "You could talk to these people up here about it. They don't know, either. They've been thinking about it for some time. Why do you think they shunned you, Barker? Possibly because there was something about you that frightened them more than they could safely bear? We had our wave of suicides after they first came up. The ones who're left are comparatively stable on the subject. But they stay that way because they've learned to think about it only in certain ways. But go ahead. You'll be able to work something out."

"But, Hawks, I want to go back to *Earth!*"

"To the world in your memories, that you want to re-make?"

"Why *can't* I use the return transmitter?"

Hawks said: "I told you. We only have a transmitter up here. We don't have a laboratory full of control equipment. The transmitter here pulses signals describing the typewritten reports and rock samples the Navy crew put in the receiver. It isn't used much for anything, but when it is, that's what it carries. From here—without dead-accurate astronomical data, without our power supply—the signals spread, they miss our antenna down there, they turn to hash in the ionization layers—you just can't do, from the surface of an uninhabited, unexplored, airless satellite, what we can do from there. You can't just send

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up, from a world with terrestrial gravity, with an atmosphere, with air pressure, with a different temperature range, equipment that will function here. It has to be designed for here and better yet, built here. Out of what? In what factory?

"It doesn't matter, with marks on paper and lumps of rock, that we've got the bare minimum of equipment we *had* to have time to adapt. By trial and error, and constant repetition, we push the signals through, and decipher them on Earth. If they're hashed up, we send a message to that effect, and a Navy yeoman types up a new report from his file carbon, and a geologist chips off another rock of the same kind. But a man, Barker—I told you. A man is a phoenix. We simply don't have the facilities here to take scan readings on him, feed them through differential amplifiers, cross-check, and make a file tape to re-check against."

Hawks raised his arms and dropped them. "Now do you see what I've done to you? Do you see what I've done to poor Sam Latourette, who'll wake up one day in a world full of strangers, only knowing that now he'll be cured but his old, good friend, Ed Hawks, is long dead and gone to dust? I haven't played fair with any of you. I've never once shown any of you mercy, except now and then by coincidence."

He turned and began to walk away.

"Wait! Hawks—you don't have to—"

Hawks said, without stopping or turning his head, walking steadily: "What don't I have to? There's an Ed Hawks in the Universe who remembers all his life, even the time he spent in the Moon formation, up to this very moment as he stands down in the laboratory. What's being lost? There's no expenditure. I wish you well, Al—you'd better hurry and get to that airlock. Either the one at the return transmitter or the one at the Naval station; it's about the same distance."

"Hawks!"

"I have to get out of these people's way," Hawks said abstractedly. "It's not part of their job to deal with corpses on their grounds. I want to get out there among the rocks."

He walked to the end of the path, the camouflaging's shadows mottling his armor, cutting up the outlines of his body until he seemed to become only another place through which he walked.

Then he emerged into the starlight, and his armor flashed with the clear, cold reflection.

"Hawks," Barker said in a muffled voice, "I'm at the airlock."

"Good luck, Barker."

Hawks clambered over the rocks until he began to pant. Then

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he stood, wedged in place. He turned his face up, and stars glinted on the glass. He took one shallow breath after another, more and more quickly. His eyes watered. Then he blinked sharply, said. "No, I'm not going to fall for that." He blinked again and again. "I'm not afraid of you," he said. "Someday I, or another man, will hold you in his hand."

Hawks L pulled the orange undershirt off over his head, and stood beside the dressing table, wearing nothing but the bottom of the suit, brushing at the talcum on his face and in his hair. His ribs stood out sharply under his skin.

"You ought to get out in the sun, Hawks," Barker said, sitting on the edge of the table, watching him.

"Yes," Hawks said abstractedly, thinking he had no way of knowing whether there really had been a plaid blanket on his bed in the farmhouse, or whether it had been a quilted comforter. "Well, I may. I should be able to find a little more time, now that things are going to be somewhat more routine. I may go swimming with a girl I know, or something. I don't know."

There was a note in his left hand, crumpled and limp with perspiration, where he had been carrying it since before he was put into his armor the first time. He picked at it carefully, trying to open the folds without tearing them.

Barker asked: "Do you remember anything much about what happened to us on the Moon after we got through the formation?"

Hawks shook his head. "No, I lost contact with Hawks M shortly afterward. And please try to remember that we have never been on the Moon."

Barker laughed. "All right. But what's the difference between being there and only remembering being there?"

Hawks mumbled, working at the note: "I don't know. Perhaps the Navy will have a report for us on what Hawks M and Barker M did afterward. That might tell us something. I think it will."

Barker laughed again. "You're a peculiar duck, Hawks."

Hawks looked at him sidelong. "That sums me up, does it? Well, I'm *not* Hawks. I remember being Hawks, but I was made in the receiver some twenty-five minutes ago, and you and I have never met before."

"All *right*, Hawks," Barker chuckled. "Relax!"

Hawks was no longer paying any attention to him. He opened the note, finally, and read the blurred writing with little difficulty, since it was in his own handwriting and, in any case, he knew what it said. It was:

"Remember me to her."

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John Berry, author of the 1959 Macmillan Prize Novel, KRISHNA FLUTING, *reports: "Karl Almegaard told me this story. If it were not true, he would not have told it to me."*

THE LISTENER

by John Berry

ONCE THERE WAS A PUNY LITtle Czech concert violinist named Rudolf, who lived in Sweden. Some of his friends thought he was not the best of musicians because he was restless; others thought he was restless because he was not the best of musicians. At any rate, he hit upon a way of making a living, with no competitors. Whether by choice or necessity, he used to sail about Scandinavia in his small boat, all alone, giving concerts in little seaport towns. If he found accompanists, well and good; if not, he played works for unaccompanied violin; and it happened once or twice that he wanted a piano so badly that he imagined one, and then he played whole sonatas for violin and piano, with no piano in sight.

One year Rudolf sailed all the way out to Iceland and began working his way around that rocky coast from one town to another. It was a hard, stubborn land; but people in those difficult places do not forget the law of hospitality to the stranger—for their God may decree that they too shall become strangers on the face of the earth. The audiences were small, and even if Rudolf had been really first-rate, they would not have been very demonstrative. From ancient times their energy had gone, first of all, into earnest toil. Sometimes they were collected by the local schoolteacher, who reminded them of their duty to the names of Beethoven and Bach and Mozart and one or two others whose music perhaps was not much heard in those parts. Too often people sat stolidly watching the noisy little fiddler, and went home feeling gravely edified. But they paid.

As Rudolf was sailing from one town to the next along a sparsely settled shore, the northeast turned black and menacing. A storm was bearing down upon Iceland. Rudolf was rounding a bleak, dan-

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gerous cape, and his map told him that the nearest harbor was half a day's journey away. He was starting to worry when he saw, less than a mile off shore, a lighthouse on a tiny rock island. At the base of the lighthouse was a deep, narrow cove, protected by cliffs. With some difficulty, in the rising seas, he put in there and moored to an iron ring that hung from the cliff. A flight of stairs, hewn out of the rock, led up to the lighthouse. On top of the cliff, outlined against the scudding clouds, stood a man.

"You are welcome!" the voice boomed over the sound of the waves that were already beginning to break over the island.

Darkness fell quickly. The lighthouse keeper led his guest up the spiral stairs to the living room on the third floor, then busied himself in preparation for the storm. Above all, he had to attend to the great lamp in the tower, that dominated the whole region. It was a continuous light, intensified by reflectors, and eclipsed by shutters at regular intervals. The duration of light was equal to that of darkness.

The lighthouse keeper was a huge old man with a grizzled beard that came down over his chest. Slow, deliberate, bearlike, he moved without wasted motion about the limited world of which he was the master. He spoke little, as if words had not much importance compared to the other forces that comprised his life. Yet he was equable, as those elements were not.

After the supper of black bread and boiled potatoes, herring, cheese and hot tea, which they took in the kitchen above the living room, the two men sat and contemplated each other's presence. Above them was the maintenance room, and above that the great lamp spoke majestic, silent messages of light to the ships at sea. The storm hammered like a battering ram on the walls of the lighthouse. Rudolf offered tobacco, feeling suddenly immature as he did so. The old man smiled a little as he declined it by a slight movement of the head; it was as if he knew well the uses of tobacco and the need for offering it, and affirmed it all, yet—here he, too, was halfway apologetic—was self-contained and without need of anything that was not already within his power or to which he did not relinquish his power. And he sat there, gentle and reflective, his great workman hands resting on outspread thighs.

It seemed to Rudolf that the lighthouse keeper was entirely aware of all the sounds of the storm and of its violent impact upon the lighthouse, but he knew them so well that he did not have to think about them; they were like the involuntary movements of his own heart and blood. In the same way, beneath the simple

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courtesy that made him speak and listen to his guest in specific ways, he was already calmly and mysteriously a part of him, as surely as the mainland was connected with the little island, and all the islands with one another, so commodiously, under the ocean.

Gradually Rudolf drew forth the sparse data of the old man's life: He had been born in this very lighthouse eighty-three years before, when his father was the lighthouse keeper. His mother—the only woman he had ever known—had taught him to read the Bible, and he read it daily. He had no other books.

As a musician, Rudolf had not had time to read much either—but then, he had lived in cities. He reached down and took his beloved violin out of its case.

"What do you make with that, sir?" the old man asked.

For a second Rudolf thought his host might be joking; but the serenity of the other's expression reassured him. There was not even curiosity about the instrument, but rather a whole interest in him, the person, that included his "work." In most circumstances Rudolf would have found it hard to believe that there could exist someone who did not know what a violin was; yet now he had no inclination to laugh. He felt small and inadequate.

"I make—music with it," he stammered in a low voice.

"Music," the old man said ponderously. "I have heard of it. But I have never seen music."

"One does not see music. One hears it."

"Ah, yes," the lighthouse keeper consented, as it were with humility. This too was in the Nature of Things wherein all works were wonders, and all things were known eternally and were poignant in their transiency. His wide gray eyes rested upon the little fiddler and conferred upon him all the importance of which any individual is capable.

Then something in the storm and the lighthouse and the old man exalted Rudolf, filled him with compassion and love and a spaciousness infinitely beyond himself. He wanted to strike a work of fire and stars into being for the old man. And, with the storm as his accompanist, he stood and began to play—the Kreutzer Sonata of Beethoven.

The moments passed, moments that were days in the creation of that world of fire and stars: abysses and heights of passionate struggle, the Idea of Order, and the resolution of these in the greatness of the human spirit. Never before had Rudolf played with such mastery—or with such an accompanist. Waves and wind beat the tower with giant hands. Steadily above them the beacon blazed in its sure cycles of darkness and light. The last note ceased and Rudolf

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dropped his head on his chest, breathing hard. The ocean seethed over the island with a roar as of many voices.

The old man had sat unmoving through the work, his broad, gnarled hands resting on his thighs, his head bowed, listening massively. For some time he continued to sit in silence. Then he looked up, lifted those hands calmly, judiciously, and nodded his head.

"Yes," he said. "That is true."

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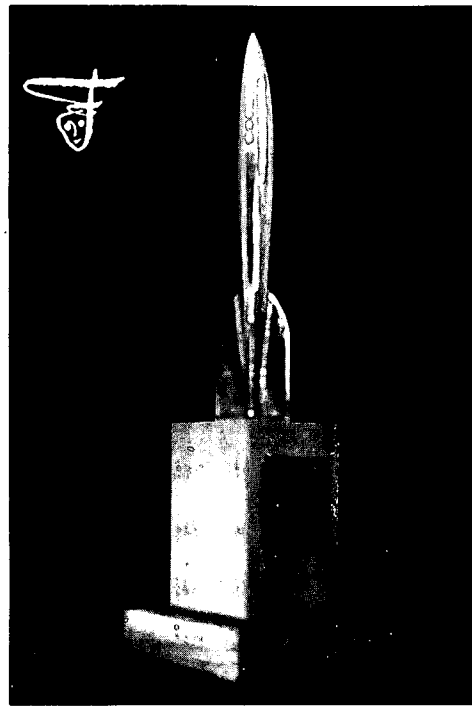

Three years in a row, now, The Magazine of FANTASY *and* SCIENCE FICTION *has been awarded the HUGO as the world's best science fiction magazine. The award is made by the annual World Science Fiction Convention, on the basis of voting by the entire membership. If by chance you have never seen a HUGO, the one to the right is the latest model, lovingly imported to our office from the 18th World Science Fiction Convention, held in Pittsburgh, in 1960. Other 1960 award winners included two F&SF entries: "Flowers for Algernon," by Daniel Keyes (Best Short Story), and "Starship Soldier" (serialized in F&SF), by Robert A. Heinlein (Best Novel). And we are pleased to report also that an artist whose work appears regularly on our cover—Ed Emsh—won won the award as Best Artist.*

It is always gratifying, of course, to receive awards, but we are well aware that a past honor is not a guarantee of future excellence, and we are not lounging comfortably around our offices basking in the reflected silvery sheen of our latest trophy. *F&SF* has always provided the widest possible variety of the best available material in the fields specified in its title. We have brought you virtually every top writer in the science fiction arena—such as Theodore Sturgeon, Robert A. Heinlein, Isaac Asimov, Alfred Bester, to name only a few of our regulars—as well as a large number of brilliant writers from other fields—Howard Fast, Robert Graves, John Collier, and Allen Drury, for example have been among the contributors to recent issues. *F&SF* also published the first stories of such able practitioners as Richard Matheson, Chad Oliver, Philip K. Dick, and Zenna Henderson. These are only a fraction of the top-calibre names we have brought you in the past—and only a fraction of those we will be bringing you in the near future. Quality has been our hallmark—and it will continue to be so.

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